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Manufacturers Record
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REFERENCE
DO NOT LOAN

May the Good Work Go On

The country begins to breathe easier. The refusal of Congress to accept the latest proposal for colossal spending is another crushing blow to forces that have followed stubbornly a course to disaster.

The signs have been too clear to be mistaken. With all the wealth of the wealthiest of nations, it was impossible to keep on as we were and avoid eventual bankruptcy.

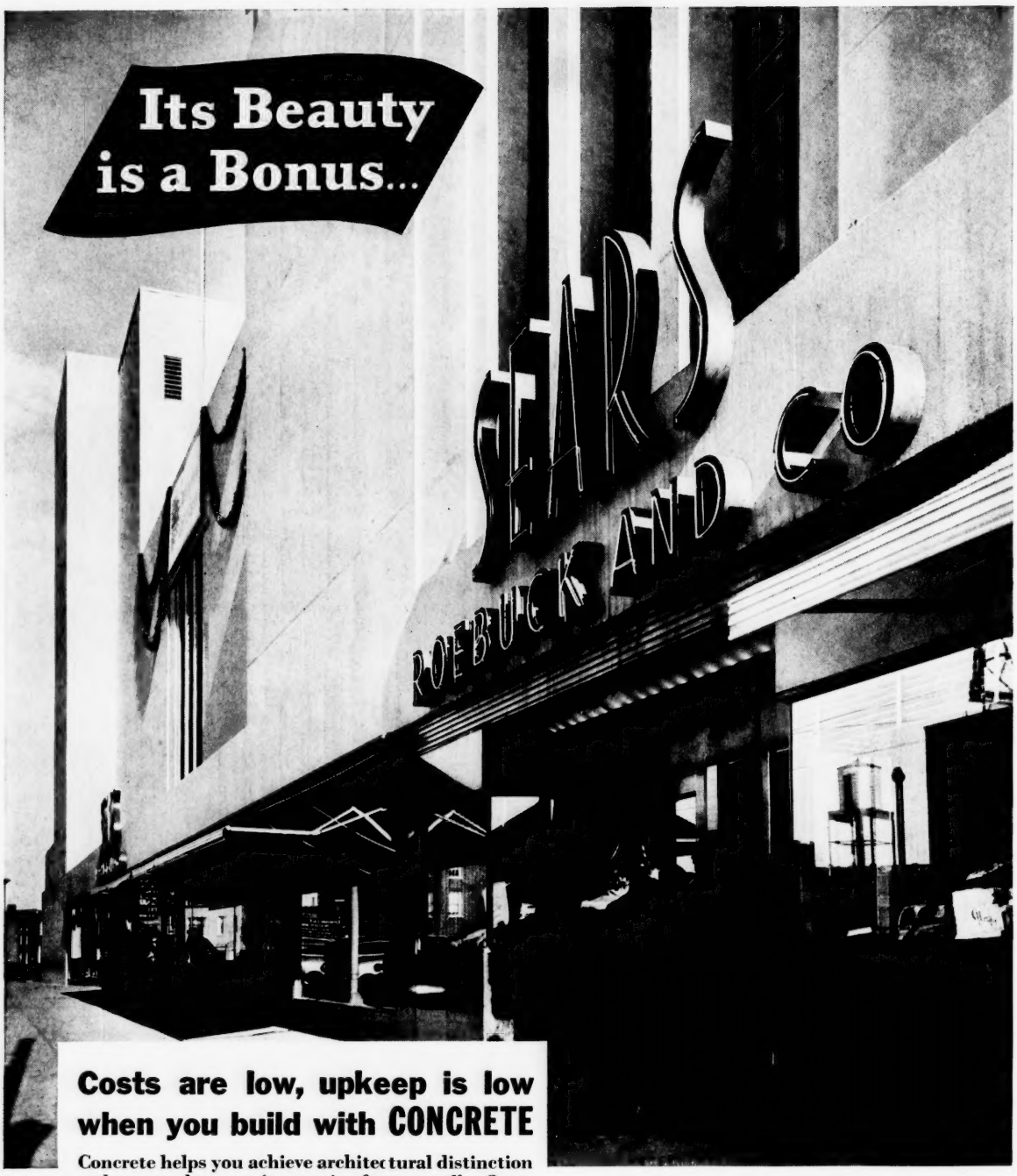
Thoughtful men have hoped against hope. Executives of various outstanding private enterprises lent their aid at different times, but had to give up. The decisions of the inexperienced Star Chamber theorists were against them. The specter of repudiated obligations and outright inflation loomed larger and larger, and is still a disquieting danger.

The refusal of the House of Representatives to consider the President's lending-spending bill indicates a significant trend. The Senate had sent the bill down to the lower house with several sizeable gashes, but it should be remembered that two-thirds of the Senators are sure of their jobs until 1942. However, the House, with its members coming up for renomination next spring, refused to consider the bill.

What does this reversal of form on the part of Congress mean? These men are in politics just as much as the President, and hope for advancement. There is no Representative so obsolete as one who has just been ousted, and each and every one of them knows this, yet 193 saw fit to vote in direct opposition to a president who for nearly seven years has enjoyed unprecedented popularity.

There has been a check administered to profligacy, an arresting halt to the orgy that has been devoid of plans for the coming of the time when payment must be made.

August
1939



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MANUFACTURERS RECORD

Devoted to the Upbuilding of the Nation Through the Development of the South and Southwest as the Nation's Greatest Material Asset

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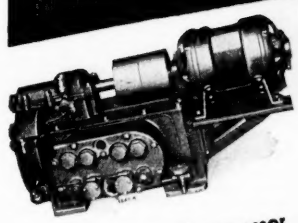

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Industrial Division
PITTSBURGH, PA.

W.W. HURLBUT *writes:*

LONG LIFE

This unretouched photo shows a section of America's oldest functioning cast iron water main, installed 118 years ago in Philadelphia. On such evidence rests cast iron pipe's title to the slogan, Public Tax Saver No. 1.

"In the high value district of Los Angeles, comprising approximately one square mile, there are 147,000 lineal feet (approximately 26 miles) of cast iron pipe in diameters 24", 20", 18", 16", 12", 10", 8", and 6". The oldest of this pipe, the 18", was laid forty-five years ago. The system is operated under seventy-five pounds pressure.

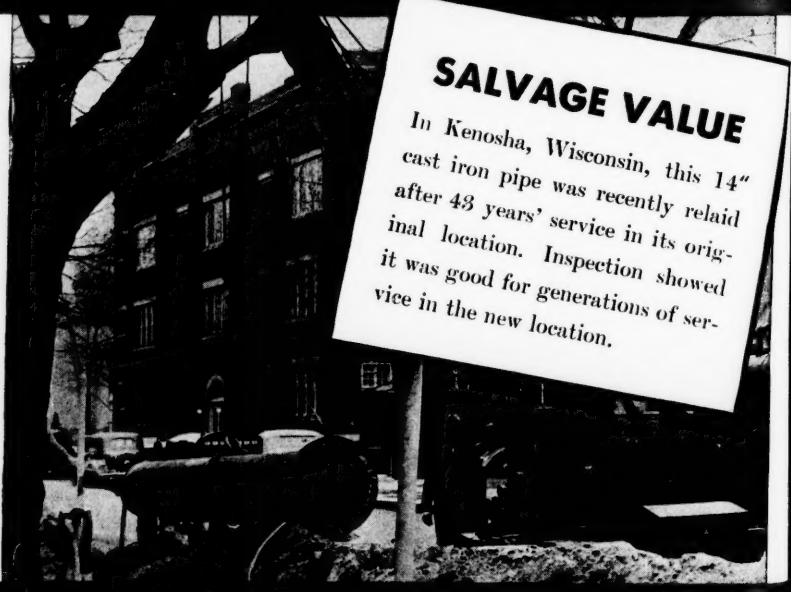
"The maintenance and repair costs for these twenty-six miles of distribution lines for the past ten years amounted to $143.00. Repairs were due to four breaks. This results in the low cost of 55¢ per mile per year."

W.W. Hurlbut

WATER mains represent about one-third of this country's 5-billion-dollar investment in public water supply systems. More than 98% of these mains are cast iron pipe with a *known* useful life at least double the *estimated* life of other water main materials. Because the tax-saving, through deferred replacements alone, is enormous, cast iron pipe is known as Public Tax Saver No. 1.

CAST IRON

Look for the "Q-Check" Registered trade mark. Cast iron pipe is made in diameters from 1¼ to 84 inches.



SALVAGE VALUE

In Kenosha, Wisconsin, this 14" cast iron pipe was recently relaid after 43 years' service in its original location. Inspection showed it was good for generations of service in the new location.

ONE EFFECT OF A NATIONAL LABOR LAW

NEW ENGLAND textile mill owners in their desire to impose a higher minimum wage upon the textile mills of the South have made common cause with the C.I.O. and A.F.L. textile unions.

Thirty years ago the then Governor of Massachusetts received a petition from prominent New England mill owners asking the appointment of a commission to go to Washington to persuade Congress to pass a national labor law. It was abandoned because in those days States' Rights were regarded more sacredly than they have been since.

Sustained efforts, however, got results later in the adoption of the iniquitous Wage and Hour bill. It has been frequently charged that the major influence back of its adoption was the insistence of New England textile interests.

The South at the time of its adoption saw in it more than the wiping out of a wage differential previously regarded as just because of cheaper living conditions in the Southern states; more than the handicaps the law would inflict upon the textile business. The South saw it rightly as a killing blow to small industries in many states and voiced its opposition to the hand of government being laid with increasing force and interference upon private enterprise.

This publication asserted then and repeats now, the bill was passed and the law created without adequate reason at a time when business was struggling to lift its head, and inevitably would impede progress and add to unemployment.

New England wants the South to pay more for its textile labor, and the South has proven that 32½ cents per hour minimum is too high.

The idea back of New England's campaign is selfishness. The South has natural advantages for cotton manufacturing and the development of that industry in the South has been a natural development. Because of natural advantages it will continue to develop, although the attempt is now being made to impose a serious handicap.

The Wage and Hour bill and discriminatory freight rates are embargoes upon Southern progress. New England does not want the South's freight charges equalized because in the language of Governor Cross, of Connecticut:

"While the growth of this class of industry (cotton mills) in the South has been gradual, it has been of a most healthy nature. With all the natural advantages of climate which bring with them materially reduced living costs in fuel, clothing, recreation and food, the South has God-given aids which even the Interstate Commerce Commission cannot match. * * * The fact is that Southern industries have been thriving in recent years even though there is complaint of rate handicap. This is not surprising, since, as I have attempted to point out, Southern producers have distinct advantages over their Northern competitors in every element which enters into the cost of production. Accordingly, it does not seem to me equitable that the Commission should, in the light of all the advantages, free the complainants of what they claim is the lone disadvantage."

The MANUFACTURERS RECORD said a year ago:

"Now, however, with 70 per cent of the cotton spindles of the country in operation in the Southern states and 80 per cent of cotton takings manufactured in the Southern states; * * * because of the advantages of being nearer the site where raw materials and American labor are to be found the South must be penalized!"

Is Cotton A Necessity?

The figures cited by Henry Plauche, Secretary of the New Orleans Cotton Exchange, in his annual report of the cotton crop for the year ending July 31, 1939, are not only interesting but serve to emphasize the plight of United States cotton.

World consumption of lint cotton amounted to 11,086,000 bales compared with 11,177,000 bales last year, and 13,253,000 bales the year before last; and exports totaling 3,622,742 bales declined 2,331,258 bales from the 5,954,000 bales exported last year. On the other hand, the world carry-over of United States lint cotton which was only 5,740,000 bales in July 1937, and rose to 12,955,000 bales last year, reached the all time high of 13,438,000 bales this year. Of the latter sum, the carry-over in this country comprised 12,326,000 bales. At the same time, domestic shipments of rayon—that synthetic fiber which has proved such a successful competitor of cotton, amounted to 161,100,000 pounds during the first six months of 1939, an increase of 62 per cent over the comparable figure for 1938. Incidentally, it should be noted that the growth of consumption continues to exceed domestic productive capacity.

It does not require the experience of an expert to determine from the above figures that our cotton industry's position is desperate especially when it is pointed out that the annual production of cotton in this country has only exceeded the present world carry-over of United States cotton in eleven years since 1910. While the cost of production in this country and the indifference of our growers to improving the standard and staple of the cotton produced has been an incentive to foreign producers, the uneconomical, propitiating behavior of this government to cotton growers during the past several years has unquestionably proved the motivating force to speed foreign production to the point where no export subsidy will reclaim our 60 per cent share of cotton export trade.

Secretary of Agriculture Wallace recently said that farmers pay little attention to arguments about government interference with private enterprise and consequent violation of the "so-called natural laws of economics." That Mr. Wallace condones this point of view, if not subscribing to it, is apparent from each of his succeeding cotton programs. Mr. Wallace also states that if it had not been for federal assistance the great majority of cotton growers would have gone broke. Maybe so, but the fact remains when we advanced twelve cents on cotton, and the world price was nine cents, we did more toward the loss of our foreign trade and more toward increasing foreign competition than if we had let our cotton find its own level without attempting the impossible as every governmental attempt at artificial control has shown.

Elsewhere in this issue the story is told of the efforts being made to find new uses for cotton. These are both interesting and important, as is the work being done in Texas by Dr. Killough to produce a lintless seed cotton, but all of these experiments are based upon the continued production of cotton in one form or another.

It is true that production of cotton is not likely to cease soon. It is true there is a large cotton textile industry in this and other countries. It is true that we have much need of the cottonseed and its oil, and it is true that we know of no other similar source of alpha cellulose. On the other hand it is vital for our farmers to diversify their crops further, and particularly pay attention to the production of other oil producing crops. The increase of rayon and other synthetic fibers may possibly be the handwriting on the wall, and the time may come when it will be economical to import what we need in the way of cotton, especially when it costs no more and possibly less than the cost of domestic cotton. If the present course is continued it is not likely we shall be able soon to compete with foreign growers. We need all the vegetable oil we can produce, but cottonseed is not the only source. As for cellulose, can the chemists deny that we have an enormous source of supply in trees and other plants, many of which can be grown far more economically than cotton.

One may well inquire—is cotton a necessity?

Labor Tactics Askew

When the W.P.A. strike started labor leaders hurried to Washington to get new legislation that would abolish the 130-hour rule. But they didn't get the reception anticipated. The President didn't see the point, nor did the political key men from whom action was expected, so the strike petered out. Labor tactics were way off in sympathizing with a strike that was indefensible and absurd. Public opposition being pronounced, the politicians, notwithstanding all the blather of little labor men who threatened dire happenings, refused to take their part.

Backbone is becoming more apparent in these latter days.

Employers To Be Heard

The Labor Board's consent to hear the appeal of General Motors for a hearing to decide with which group the employer is to deal in factional labor controversies, gives new hope. The Wagner law has not been changed yet, but this will come in time when the country sees the mischief it has worked and the discord instead of harmony it has brought

about. The country is seeing some other things in their proper light as taxes mount.

T.V.A. Checked

The T.V.A. wanted $100,000,000 more and got $61,000,000, all ear-marked; $45,000,000 is to pay for the Tennessee Electric Power Co., and the balance will be spent strictly under Congress' direction. The Tennessee state tax bill which the electric company paid is now up to the state, and there is a lot of talk about where the money is to come from.

Undoubtedly the fair thing is for T.V.A. to pay more taxes, but that will worry the yardstick boys. They thought they had something there, but they didn't and the yardstick has gone out of the window with other things.

If T.V.A. pays more taxes, as they should, electric rates will have to go up unless government puts up more cash.

Taxes And Earnings

In a digest by the St. Louis *Globe-Democrat*, of a survey made by the American Federation of Investors, some interesting facts were brought out about income, taxes and profits of 163 typical corporations representing a cross section of American industry, but including the principal corporations of the country. These corporations have assets of $40,379,000,000, and more than 6,500,000 stockholders, of which 5,806,000 are holders of common stock. The average holding of each is 104, and more than three-fourths of the common stockholders have not more than 100 shares. This indicates the wide distribution of investment in the stocks of these industries, and shows that 5 per cent of all the people, or 20 per cent of all the families, are concerned, many of them vitally, in the profits these corporations earn.

In 1938, there were paid out for taxes by these corporations $1,643,000,000, while the net income after taxes were paid was $1,022,000,000. Taxes took nearly two-thirds of the net income, leaving in most instances little for the stockholders and often nothing at all. The books of thirty showed a deficit after taxes, and 52 paid no dividends.

The average per share of common stock paid for taxes in 1938 was $2.73, and the average of all the dividends was $1.33, which was less than half as much as the amount paid for taxes.

The *Globe-Democrat* says — "It is easy to see from these illuminating figures why capital is so stagnant, why unprecedented billions of deposits are idle in the banks, why there is no incentive to new industrial enterprise, why unemployment is still so great a problem."

$9,316,000 in New Plants For the South

Of definite encouragement is the announcement in the columns of the CONSTRUCTION daily bulletin during the past month of over $9,316,000 in contracts awarded for new industrial plants and expansions in the 16 Southern states. Several involve more than a million dollars each and twelve will cost more than $100,000 each. All privately financed, they indicate in a tangible way returning confidence of capital and further development of the South's resources.

Bad Timing

Objectors to the New Deal have been termed reactionaries and worse, which is a part of politics. Of course, politics has guided the scheme from the start and it must be admitted it was clever strategy that used the other side's money to carry on the campaign.

The objectors would not have minded some of the "reforms" so much, although they might have questioned the timeliness of turning the country upside down and denouncing business men as arch criminals when millions were (and still are) unemployed. They might even have swallowed the "more abundant life" which is now obscured in molasses if the queer ideas that were sprung had made sense. But the wild potpourri of nightmares that issued, even though presented melliflously, have *not* made sense and have staggered the country with a mountainous load of debt.

The dissenters did not think it a good time to go star gazing as the thing to do was to start business, but they might have stood for a little of that except for the baneful building up of class hatred and the making of laws which promoted discord.

Read the list through. Consider what was constructive and what was destructive. No matter what the purpose, practical men knew what the effect would be and the colossal cost that would be all too apparent if spending kept up. It has kept up and we are where we are. But now there are other signs as the tax bill assumes monumental proportions.

Congressmen who did not move very fast at first have joined the objectors, and whether it was statesmanship that prompted it or the mistakes that political strategy made, because there have been some very bad mistakes, the result is encouraging and the country is taking hope.

COME ON! GET IN THE SWIM!

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For complete information regarding rates, routes, and schedules; and for assistance in the solution of your shipping problems, call or write any representative of the Norfolk and Western Railway's Freight Traffic Department.

NORFOLK AND WESTERN RAILWAY

PRECISION TRANSPORTATION

Virginia's Resources and Industrial Opportunities

VIRGINIA, one of the original thirteen states and called the "Old Dominion," contains the site at Jamestown of the first permanent English settlement in America, having been settled in 1607. Named Virginia by Queen Elizabeth, it is interesting to note that the name was applied upon presentation of a favorable report of what is now the North Carolina, not Virginia, coastal region by Amadas and Barlow, the two emissaries of Sir Walter Raleigh to whom had been passed in 1584 the land patent originally granted to Sir Humphrey Gilbert. The first "Charter of Virginia" was granted to the Virginia Company by James I in 1606 and was so governed until 1624 when the charter was revoked and Virginia became a royal colony, continuing as such until the Revolution. Virginia has been a leader among the states from the earliest days and was one of the first to resist "taxation without representation" by the British Parliament.

Thirty-third in size with an area of 42,627 square miles of which 2,365 square miles are water, Virginia ranks twentieth in population with an estimated 2,706,000 in 1937. The negro population comprises 26.8 per cent of the total.

Climate

BECAUSE of its varied topography ranging from the coastal plateau region in the east and south to the mountains of the west, the climate of Virginia embraces distinct differences. In the north and central parts of the state the winters are rigorous but not severe and the summers are warm with the temperature seldom exceeding 90 degrees Fahrenheit. The average annual temperature is 54.1 degrees Fahrenheit. The precipitation is abundant and usually well distributed with an average annual rainfall of 38.64 inches. Snowfall is relatively heavy in winter especially in the west averaging approximately 30 inches.

In the southern part of the state the summers are long and warm with mild winters except in the mountains. The average annual temperature is 56.5 degrees Fahrenheit and the rainfall average is 43.03, the heaviest rain falling during the growing season of April to September, and November is the driest month. The snowfall averages 12.5 inches.

Transportation

IN September 1938 the Virginia highway system was made up of 46,000 miles of road. Three counties not included in the State system had an aggregate of more than 500 miles of public roads. The aggregate linear road distance of 46,500 miles was made up of the following general types:

Hard Surfaced	28%
Gravel, Soil, Etc.	37.5%
Graded and Drained	22.2%
Unimproved	12.8%

Bus and motor freight routes serve all the principal communities within the State and connect them with points outside.

The steam railroads in Virginia operate about 4,450 miles of road, which is so distributed as to leave less than ten per cent of the State's area more than ten miles from an "open" freight station. Much of this area more than ten miles from an open freight station is served by water borne transportation facilities.

The so-called "Tidewater" section of Virginia is penetrated by the estuaries of four major river systems, the Potomac, Rappahannock, York and James. In addition to these rivers which carry traffic a considerable distance inland, there are numerous minor traffic bearing creeks and channels along Chesapeake Bay.

The Potomac River has a 24 foot channel extending 108 miles from its mouth to Washington, D. C. In 1937 the River carried 2,449,622 tons of freight traffic valued at $75,419,798.

The Rappahannock River has a 20 foot channel from its mouth to Tappahannock, a distance of 41 miles. From Tappahannock to Fredericksburg the channel depth is 10.9 feet and the distance is 66 miles. Freight traffic over this river in 1937 totaled 191,584 tons with a value of $4,192,913.

The York River is navigable throughout its length of 41 miles with a channel depth of 34 feet for 23 miles and 23 feet for 18 miles. In 1937 it carried freight traffic in the amount of 350,389 tons valued at $18,943,344.

The Mattaponi and Pamunkey Rivers, principal tributaries to the York, are navigable for distances of 33 and 50 miles respectively, with relatively shallow channels.

From its mouth to Hopewell, a distance of 69.2 miles, the James River has a 25 foot channel depth. From Hopewell to Richmond the controlling depth is 18 feet throughout the distance of 21.6 miles. Freight traffic on the James River during 1937 was valued at $90,725,568 and its tonnage was 2,242,335.

Principal navigable tributaries to the James are the Appomattox, Nansemond and Pagan Rivers with channel depths of between 10 and 12 feet. Their aggregate linear mileage is 35.6.

Waterways from Norfolk, Virginia to the sounds of North Carolina and to Beaufort Inlet, N. C., total about 56 linear miles in Virginia, with channel depths ranging from 9 to 12 feet. In 1937 these two channels carried a total of 1,043,238 tons of freight traffic valued at $46,904,681.

Airlines operating five different routes over Virginia provide a rapid means of passenger and express transportation. Three of the lines operate both as local and through carriers in Virginia while the remaining two operate only as through lines.

Manufactures and Finance

THE total value of manufactured products in Virginia during 1937 was $908,222,316, a gain of $210,692,644 or more than 30 per cent over the figure for 1935. Out of the 79 industries with three or more establishments listed separately by the census reports for 1937, 58 industries manufactured products valued at over one million dollars. By far the largest industry was cigarettes and tobacco, the value of which was $298,109,316. Other important industries separately listed were: rayon and allied products, $64,895,099; paper and pulp, $47,440,421; chemicals, exclusive of drugs, insecticides, etc., $31,687,241; clothing and hosiery, $31,346,497; cotton woven goods, $31,230,313; furniture, $30,016,087; lumber, timber and planing mill products, $26,960,342; fertilizers, $20,495,097; tanning materials, $18,779,567; printing and publishing, $16,154,549; flour and other grain mill products, $16,124,956; meat packing, $12,839,485.

The cost of materials, fuel, and power utilized in the manufacture of the state's various products amount to $572,374,499 and 132,643 wage earners engaged in the 2,384 establishments had a payroll of $112,773,796. Only one of the state's hundred counties does not support any manufacturing.

According to the State Department of Labor and Industry, the amount of capital as represented by book values of land, buildings, machinery, and plant equipment in all Virginia industries in 1937 was $302,394,915.

The aggregate resources of 319 banks reporting to the Comptroller of the Currency June 30, 1938 totaled $645,667,000. The capital stock including capital notes and debentures of these banks amounted to $45,242,000 and individual deposits were $556,382,000. The total bank transactions of reporting clearing house exchanges in 1938 aggregated $2,454,375,000 and internal revenue tax collections totaled $206,681,411.

Agriculture

CASH farm income of $119,636,000 in Virginia during 1938 was only a little more than five per cent greater than the industrial payroll, but agriculture is an important factor in the economic life of the state providing a livelihood for approximately 40 per cent of the population. Of this cash farm income, $61,761,000 came from crops grown on 3,805,600 acres and $53,792,000 was derived from livestock and livestock products. The principal crop was tobacco and the 105,459,000 pounds from 130,600 acres produced a cash income of $20,925,000. Other important crops include: 151,590,000 pounds of peanuts yielding $4,906,000 from 163,000 acres; 8,526,000 bushels of wheat from 609,000 acres produced a cash income of $4,042,000; 34,775,000 bushels of corn from 1,391,000 acres yielding $2,691,000; 12,000 bales of cotton lint produced $529,000 plus $67,000 from 6,000 tons of cottonseed; and 262,000 bushels of soy beans yielded $100,000.

The value of Virginia's 2,226,000 head of cattle in 1938 was $76,086,000. Included in this aggregate are 886,000 cattle valued at $34,161,000 (including 420,000 cows and heifers kept for milk and worth $20,160,000), 395,000 sheep, 683,000 swine, and 167,000 horses. The total cash farm income from dairy produce in 1938 was $34,150,000 of which milk contributed $16,231,000, eggs $10,848,000, and chickens $7,071,000. Among dairy products produced in factories in 1937, condensed milk amounted to 10,731,000, evaporated milk 8,123,000 pounds and butter 6,508,000 pounds.

Fisheries

THE seafood industry in Virginia is one of the largest sources of occupation and revenue in the State.

In some years the seafood catch has reached a value of $5,000,000, giving employment to 11,000 fishermen and several thousand other persons engaged in related occupations. However, increasing competition and overfishing brought serious results.

The improvement of these conditions has been actively prosecuted by the Virginia Commission of Fisheries in a program including repletion, pollution control, and marine research.

The repletion program has included planting of oyster shells, dredging of old oyster rocks, transplanting of 15,000 bushels of seed oysters, shortening of the sponge crab season, liberation of 3,000 diamond-back terrapin in Virginia waters, and the operation of a system of shad hatcheries to re-stock Tidewater rivers.

Marine research is being carried out by the commission in cooperation with several laboratories including those of the U. S. Bureau of fisheries at Yorktown, Virginia, operated in conjunction with the State and at Solomon's Island in the Chesapeake bay, and the biology department of the College of William and Mary at Williamsburg, Virginia.

Timber

ABOUT 52 percent of Virginia's total land area of 25,676,325 acres is classified as forest land. This area, comprising 13,610,000 acres, supports a commercial area of 13,375,000 acres, including 1,325,000 acres of old growth saw timber and 4,875,000 acres of second growth saw timber, or a total of 6,200,000 acres, plus 4,095,000 acres of cordwood.

The saw timber area, bearing 22,150,000,000 board feet, consists of 10,960,000,000 board feet of softwoods (2,570,000,000 board feet of old growth and 8,390,000,000 board feet of second growth), and 11,190,000,000 board feet of hardwoods (4,090,000,000 board feet of old growth and 7,100,000,000 board feet of second growth). Southern yellow pine consisting of loblolly, shortleaf and Virginia pines measures 9,850,000,000 board feet and white pine 180,000,000 board feet, which together with 450,000,000 board feet of hemlock, 300,000,000 board feet of cypress and 180,000,000 board feet of miscellaneous southern species account for the total volume of softwood timber in the State. Hardwoods include 4,220,000,000 board feet of oaks, 1,400,000,000 board feet of yellow poplar, 1,390,000,000 board feet of red gum, 190,000,000 board feet of birch, beech and maple, 1,200,000,000 board feet of tupelo gum and 1,500,000,000 board feet of miscellaneous hardwood species.

On the cordwood areas are 6,025,000 cords of softwoods and 10,540,000 cords of hardwoods, or a total of 16,565,000 cords of all species. In addition, on the saw timber area it is estimated there are 16,110,000 cords of softwoods and 29,130,000 cords of hardwoods, or a total of 45,240,000 cords of all species, making a grand total of 62,550,000 cords on all the commercial forest land in Virginia including a relatively small cordage on areas that are restocking.

Mining and Minerals

VIRGINIA, with an east-west extent of 440 miles along the southern boundary, lies athwart the "grain" of the continent. It crosses four major geologic provinces and extends into a fifth one. The formations range from very old pre-Cambrian crystalline rocks to recent sediments. In this geologic environment, the mineral resources are naturally diversified.

About 150 minerals and many rock types have been reported from Virginia. Some 40 of these materials have been mined and quarried. The State abounds in nonmetallic, or industrial, mineral resources. Metals are relatively scarce. The map (reverse side) shows the distribution by counties of the mineral resources produced in 1937, the last year for which the statistical canvass has been completed. Others may be developed as new uses are found and as better and more economical processes of recovery and refining are developed.

The annual value of mineral production since the World War has ranged from more than $85,000,000 in 1926 to $17,000,000 during the 1932 part of the depression. The 1937 value may exceed $40,000,000.

Coal is the most valuable resource, accounting annually for about half of the value of production. Coal of anthracitic rank is mined along New River. The Triassic coals of the Richmond basin are being mined again. The total reserves in the State are estimated to be more than 20 billion tons.

Limestone in all grades, from dolomite to almost chemically pure limestone, is "inexhaustible" in most of the counties west of the Blue Ridge. Much of it is readily accessible and now is both an important source of mineral wealth and of industrial opportunity.

Black marble is quarried in Rockingham County. It is much used for interior work. Greenstone is obtained at Lynchburg. Soapstone occurs in large bodies in Albermarle and Nelson counties. The slate of Buckingham County is well known. Sandstone in Frederick County produces a fine grade of glass sand. Granite and similar rocks are extensively quarried throughout the Piedmont region.

Feldspar is one of the most important industrial minerals. A rock called "aplite" is being developed in Nelson County. An important deposit of kyanite is found in Prince Edward County. Diatomite underlies a long belt in the western Coastal Plain counties and the salt and gypsum deposits in Smyth and Washington counties have long been worked.

The important metallic deposits include zinc, pyrrhotite, titanium ores, and iron. A large modern mill in Nelson County obtains ilmenite, also apatite, from the rock "nelsonite." Most of the rutile produced in North America comes from Nelson County. Iron is unimportant at present. A large zinc mine is located in Wythe County. The large pyrrhotite "lead" in Grayson and Carroll counties is actively developed.

Electric Power

PRODUCTION of electric power in Virginia by public and private utility plants during 1938 totaled 1,493,575,000 kilowatt hours. Of this, 1,141,550,000 kilowatt hours were generated by fuel operated plants and 352,025,000 kilowatt hours originated in hydroelectric plants.

At the end of 1938, 69 plants in the state operated by 29 companies had a combined generating capacity of 407,989 kilowatts. Making up this total were 18 steam power plants with a generating capacity of 308,200 kilowatts and 31 water power plants capable of generating 91,396 kilowatts. Twelve internal combustion engine plants capable of developing 6,660 kilowatts and eight combination plants with a generating capacity of 91,733 kilowatts made up the balance.

Apart from its own source of supply, Virginia, through the network of connecting systems, is enabled to draw on adjoining states for additional supplies.

Taxation

REAL estate is taxed locally and rates are fixed annually. Assessed values of real estate vary but the average is about 40% of fair market value. Machinery and tools are taxed locally at local rates.

Inventory of stock on hand in Virginia, materials for use in business, excess of bills and accounts receivable over bills and accounts payable, money on hand and on deposit, and all other taxable personal property, except shares of stock in corporations, bonds of the political subdivisions of the State, and machinery and tools are taxed by the State as CAPITAL at the rate of 75c on every $100 of the actual value of such capital.

Incomes of manufacturing corporations in Virginia are subject to a State tax of 3% on net incomes derived from their Virginia business. When a corporation pays the State a tax on all its net income, the dividends are not further taxed in the hands of the stockholders. If the corporation is subject to State taxation on a part of its income only, a corresponding percentage of the dividends is exempt in the hands of resident stockholders. Non-residents of Virginia are not subject to the Virginia income tax on dividends.

Domestic corporations are required to pay annually a franchise tax of $10 on capital stock up to $25,000 and $200 on capital stock between $500,001 and $1,000,000. Between one and fifty million dollars an additional $10 per hundred thousand. Other rates apply on corporations with capital stock in excess of $50,000,000. Foreign corporations are not subject to the franchise tax but both foreign and domestic corporations are required to pay annually a nominal registration fee.

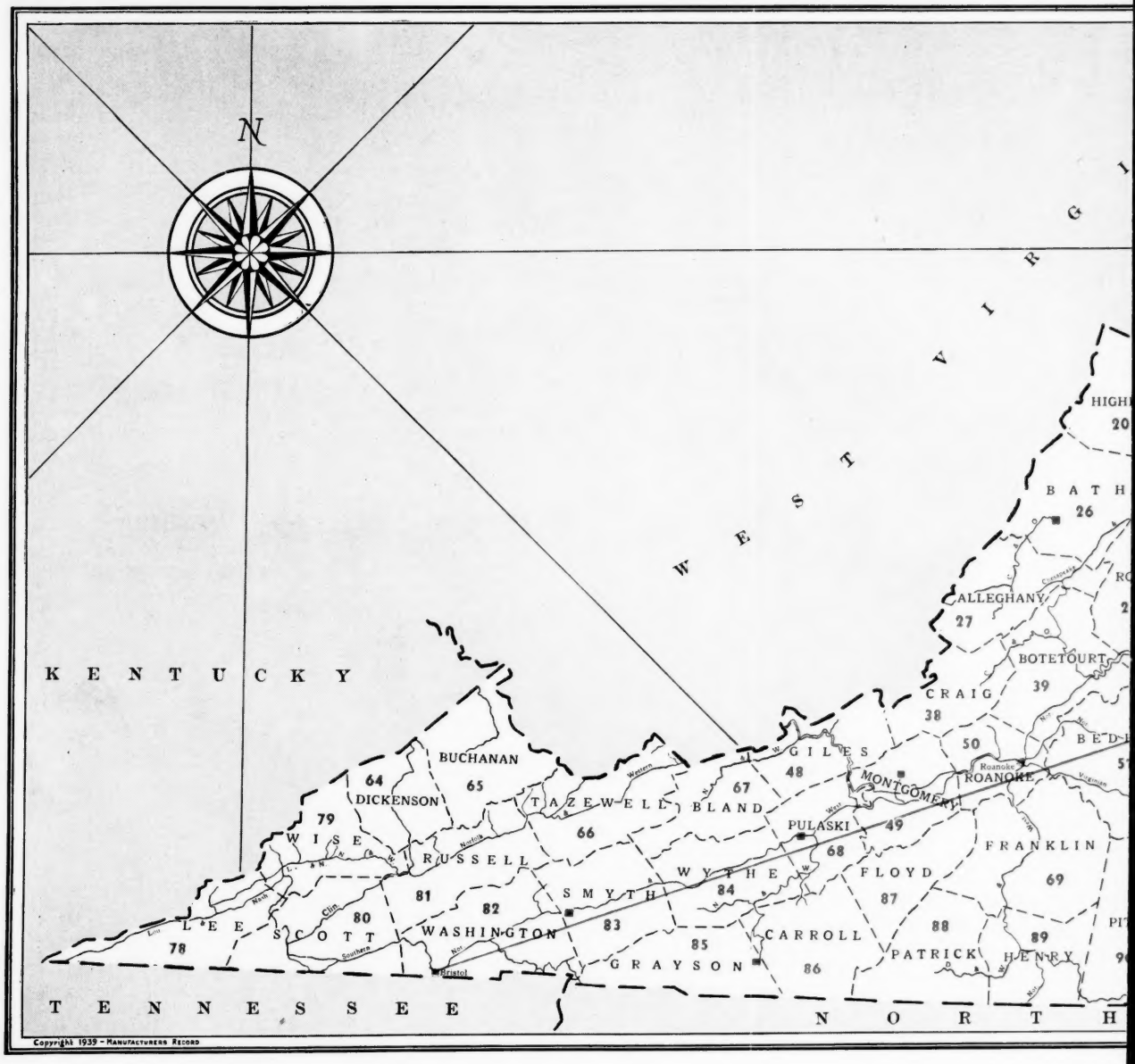
There is no state tax on real estate and machinery and tools.

The assessed value of all taxable property in 1938 was $2,128,021,618.

Labor and Wages

WITH a density of 60.2 per square mile, the population of Virginia is fairly evenly distributed and only three cities, according to the 1930 census, had a population in excess of 50,000—Richmond, 183,000; Norfolk, 130,000; and Roanoke, 69,000. The urban population comprises only 32.4 percent of the total. Over 95 percent of Virginia's white population is of native American parentage and only 1.3 percent are foreign born. Foreign stock accounted for 3 percent.

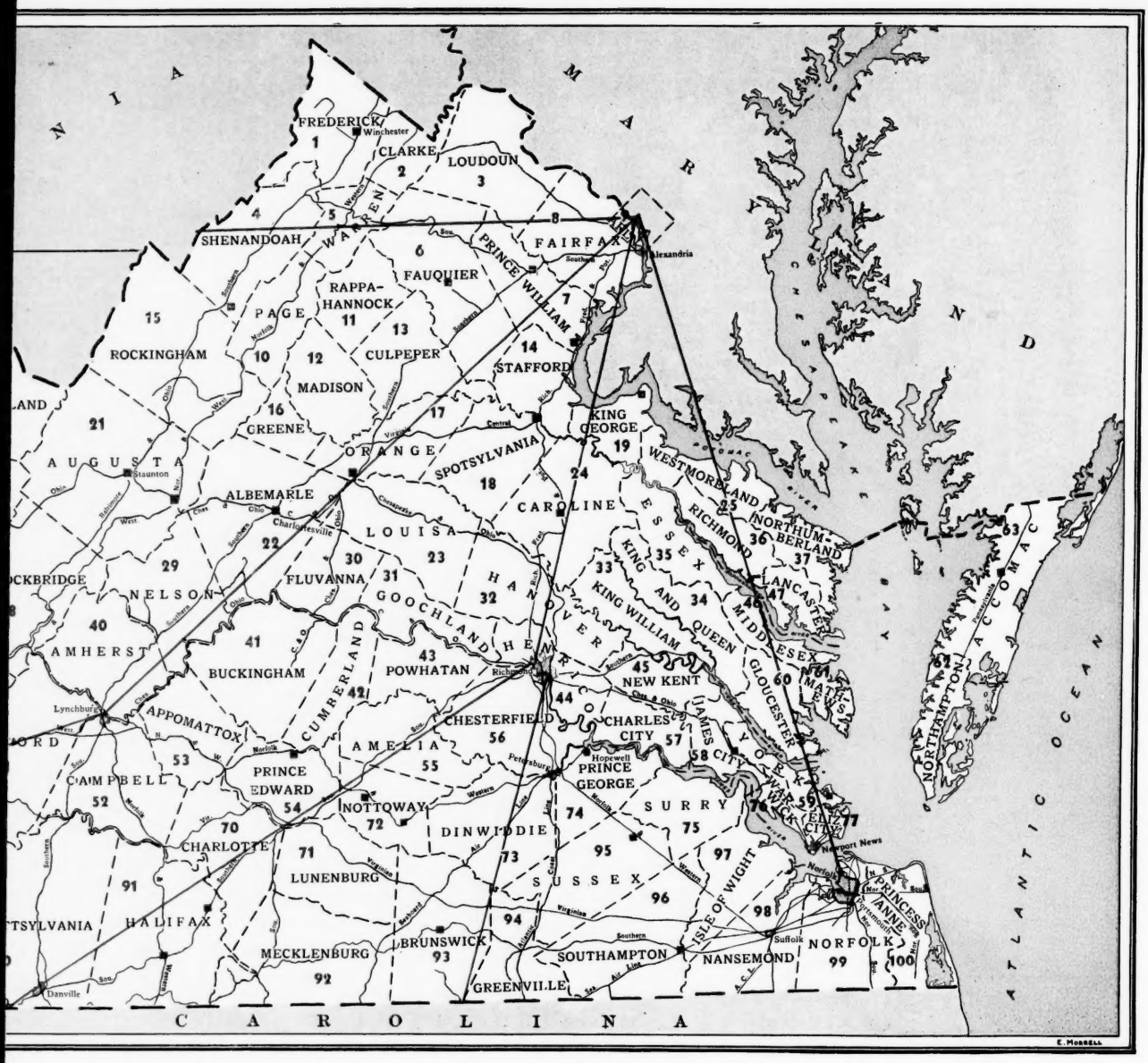
Due to the great diversity of employment conditions in manufacturing together with the number of industries and the variety of locations, it is virtually impossible to arrive at any useful conclusion regarding average wage rates. However, in view of the fact that all but one county supports some industries and the proximity of a large population in Washington, D. C., there is usually an abundance of labor for all purposes. Virginia labor has been aptly described as typically southern in that it is loyal, willing and intelligent.



VIRGINIA

Its principal raw materials and transportation facilities, with facts on the reverse side pertaining to its industrial growth and opportunities for industry.

MINERAL	COUNTIES IN WHICH MINERAL IS COMMERCIALLY PRODUCED
Barite	39, 90
Basalt	3, 6, 8, 13, 22, 70
Cement (natural)	5
Cement (Portland)	21, 99
Clay	21, 28
Coal	19, 64, 65, 66, 68, 78, 79, 80, 81
Coke	79
Feldspar	10, 51, 89
Gold	8, 17, 31, 87, 91
Granite	7, 8, 10, 31, 44, 51, 52, 56, 72, 85, 88, 90, 94
Greenstone	52
Gypsum	82, 83
Iron ore	39
Lead	84
Lime	1, 3, 4, 5, 15, 21, 39, 48, 66
Limestone	1, 3, 4, 5, 7, 10, 15, 20, 21, 26, 27, 28, 39, 48, 49, 50, 52, 66, 68, 78, 79, 80, 81, 83, 84, 85, 88
Manganese & manganiferous ore	4, 10, 21, 27, 48, 52, 67, 68, 83
Marble	15, 39
Marl (calcareous)	21, 75, 89
Mica	69, 89
Millstones	19
Natural gas	80
Phosphate	10
Pyrite	86
Quartz	51, 83
Salt brine	83
Sand & gravel	1, 9, 15, 18, 21, 24, 44, 45, 48, 51, 56, 57, 73, 84, 99, 100
Sandstone	1, 6, 7, 15, 21, 64, 65, 79, 83, 87, 90, 92
Slate	22, 41
Stone (miscellaneous)	1, 20, 21, 29, 38, 69, 71, 79, 87, 88, 89
Talc & soapstone	8, 29, 69
Titanium minerals (apatite & ilmenite)	29



Zinc—84

TIMBER

Loblolly pine—24, 25, 31 to 37, 43 to 47, 55 to 63, 71 to 77, 92 to 100

Mixed hardwoods—1 to 6, 10 to 12, 15, 16, 20 to 22, 26 to 29, 38 to 40, 48 to 51, 64 to 69, 78 to 89

Shortleaf pine & Virginia scrub pine with mixed hardwoods—3, 6 to 9, 11 to 14, 16 to 19, 22 to 24, 29 to 32, 40 to 43, 51 to 56, 70 to 73, 90 to 93

AGRICULTURAL PRODUCTS

Corn—all counties

Cotton—70, 71, 72, 73, 74, 75, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100

Peanuts—32, 33, 45, 46, 56, 58, 62, 63, 73, 74, 75, 92, 93, 94, 95, 96, 97, 98, 99, 100

Soy beans—14, 15, 19, 24, 25, 32, 33, 34, 35, 37, 41, 44, 45, 46, 47, 56, 57, 58, 59, 60, 63, 69, 74, 75, 77, 78, 89, 91, 96, 97, 98, 99, 100

Sweetpotatoes—3, 4, 6, 7, 8, 10, 12, 13, 14, 15, 16, 17, 18, 19, 22, 23, 24, 25, 29, 30, 31, 32, 33, 34, 35, 36, 37, 39, 40, 41, 42, 43, 44, 45, 46, 47, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100

Tobacco—7, 12, 13, 14, 16, 17, 18, 19, 22, 23, 24, 28, 29, 30, 31, 32, 33, 34, 35, 39, 10, 11, 42, 43, 44, 49, 51, 52, 53, 54, 55, 56, 61, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 98, 99

Commercial fisheries—7, 8, 14, 19, 24, 25, 33, 34, 35, 36, 37, 15, 16, 47, 57, 58, 59, 60, 61, 62, 63, 74, 75, 76, 77, 97, 98, 99, 100

——— **Railroads**

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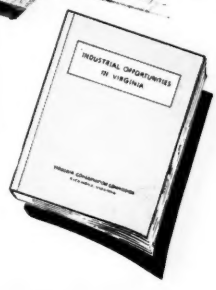
■ **Airports—also at principal cities printed in red**

To INDUSTRIALISTS WHO WANT A "BREAK"—

THE Commonwealth of Virginia cordially invites you to join the more than 400 manufacturing and processing industries which have located within her borders during the past five years . . . to prosper under such salient benefits as:

1. Sufficient native labor, both skilled and unskilled, well diffused throughout the state.
2. Favorable taxation, assured for the future by the "pay-as-you-go" policy of the State government, which always has maintained a balanced budget.
3. Boundless natural resources.
4. Proximity to eastern markets.
5. Broad transportation facilities: Railways touching all parts of the state; ocean, bay and river ports affording ready outlets to foreign and coastal markets; convenient air communication and up-to-date highways for motor carriers.
6. Genial climate.
7. A hospitable attitude on the part of the State government and all Virginians toward industry.

The Virginia Conservation Commission will be glad to send you free of charge its new booklet "Industrial Opportunities in Virginia."★ Your inquiry will be treated in a confidential manner if you so desire. Simply write to



Virginia
CONSERVATION COMMISSION

Dept. 2, 914 Capitol Street, Richmond, Va.

★ *Designed to assist Industrialists, Engineers, Technical Executives and others in their study of industrial location, it contains practical information compiled by the State Tax Commission; the Water Resources and Power, Geological Survey and Forest Service divisions of the Conservation Commission, in collaboration with the State Planning Board.*

386'-8" Continuous Plate Girder (4 lines), Hill Street Bridge over Buffalo River which we built for the city of Houston, Texas.

Russ Mitchell, Inc., Houston, General Contractor.

CONTINUOUS STEEL GIRDERS Provide

the dependable and lasting strength needed for street and highway crossings of today. Likewise they adapt themselves readily and economically to the symmetry and grace of the arch.

We have built many such bridges throughout the South and Southwest as well as those of the older and more conventional types.

Virginia Bridge

STEEL STRUCTURES

VIRGINIA BRIDGE COMPANY

Roanoke Birmingham Memphis
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3 ESSENTIALS TO PROGRESS

THIS COMPANY OFFERS TO EVERY CITY AND TOWN IT SERVES—

POWER that is *abundant* as to supply.

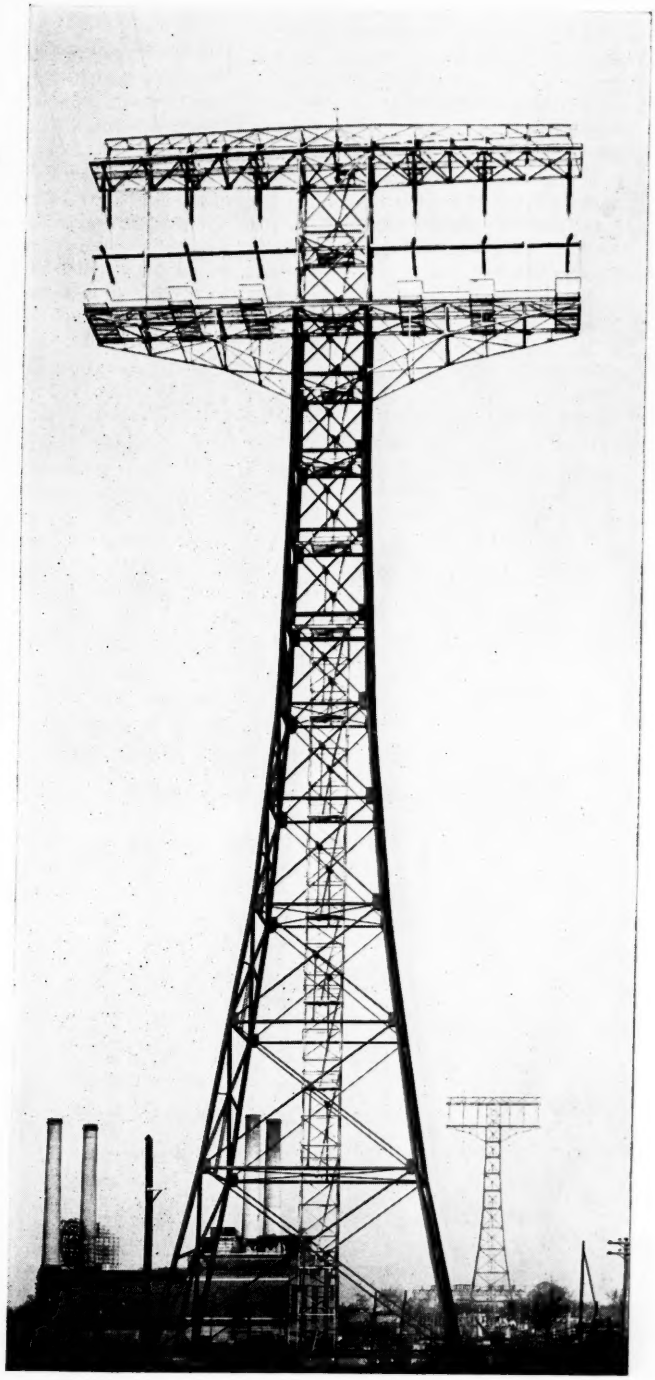
POWER that is *reliable* as to service.

POWER that is *reasonable* as to cost.

2 large modern steam plants, 7 hydro plants, and 8 interconnections with other utilities, are all connected by the high voltage transmission system now serving over 150,000 customers and about 500 cities, towns and communities in the Tidewater area.

VIRGINIA ELECTRIC AND POWER COMPANY

Richmond	Suffolk	Fredericksburg
Norfolk	Petersburg	Roanoke Rapids, N.C.
Portsmouth	Williamsburg	Williamston, N.C.



The 260-foot steel towers supporting the 1,950-foot span of our Norfolk-Suffolk transmission line across the Elizabeth River to the Reeves Avenue Power Station at Norfolk, Virginia

Bat'a Shoe Plant Advancing Rapidly on Maryland Site

On September 28, 1933, the daily *Construction* bulletin of the MANUFACTURERS RECORD carried a brief item reading:

> "Maryland—The Bata Shoe Co., Inc., 55 E. 42nd St., New York, is reported to be planning establishment of a plant at Belcamp, near Aberdeen, Md.; plans for the project include two dormitories and 36 bungalows of frame construction; V. Karfik, 330 W. 34th St., New York, is the engineer."

Today, almost six years later, this brief report, which as far as is known was the first to reveal that the great Czecho-Slovakian shoe-making combine was contemplating expansion into the western hemisphere, is materializing as construction proceeds on two factory structures and a number of brick residences in the Maryland low country not far from the Bush River, an upper tributary of the Chesapeake Bay.

The 1,200-acre site is approximately twenty-five miles out of Baltimore on one of Maryland's two dual highways. From this road the half finished reinforced concrete skeleton of what is to be a five-story manufacturing building silhouettes against a picturesque countryside. The steel and wood frame of another low but long building lies between it and an adjacent woodland. Seventeen brick dwellings are also at varying stages of erection.

Reports are that the community will ultimately duplicate the establishment at Zlin, in what was formerly Czecho-Slovakia. The Zlin layout has been described as the world's most modern industrial city. Schools, churches, hospital, recreational centers, hotels and apartment houses are to be built at Belcamp in the effort to bring the European idea to this country.

Homes being erected will form the nucleus of the new Maryland town. Those now in the farthest stages indicate two-family dwellings, of brick, cinder block and wood construction, with concrete foundations. They line the several blocks of roadways now being used to facilitate construction operations and finally to be the main thoroughfares of the town. It is understood that as soon as American costs are determined other dwellings will be erected to bring the number to enough for forty families.

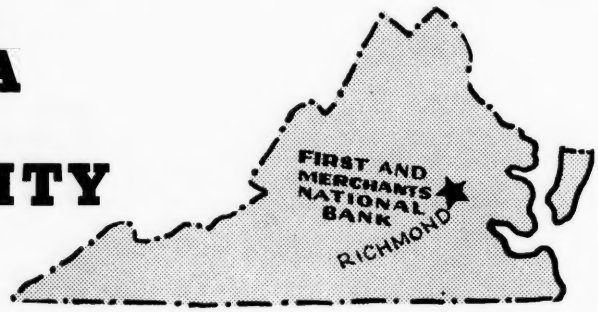
The first contingent of a hundred skilled Czecho-Slovakian shoe plant workers will soon arrive to start manufacturing operations and to train local labor. Bat'a methods are said to emulate the straightline production procedure of the American automotive industries, which were studied and adapted to shoe manufacture by Bat'a officials. Combination of these advanced methods with low-rent dwellings and good wages are said to result in the ideal conditions to prevail in the new Maryland community.

Jan Bat'a, who is head of the Czecho-Slovakian enterprize with its reputed $300,000,000 assets, will at times reside at Belcamp, where a house is being remodeled for his use. His nephew, Thomas Bat'a (nephew of Jan and son of the Bat'a founder), will head a plant to be established in Canada. Another model community and manufacturing center is to be located there at Frankford, in Sidney township, Ontario.

The Maryland factory building is being constructed by the Price Construction Co., of Baltimore, with Walter Ballard in charge. John Hoza, a Bat'a director, heads the group constantly supervising the operations, under the immediate eye of Joseph Polasek, Czecho-Slovakian construction engineer. Original plans for the factory were prepared by Vladimir Karfik, who in 1933 came from Zlin to direct purchase of the land and study American engineering and manufacturing methods.

Rumors have it that more than twenty factory units like the five-story, 60 by 265-foot structure now under construction may ultimately form part of the development. Manufacturing operations are scheduled to start this fall, with the expectation that 2,000 workers will be employed by 1940.

VIRGINIA AND OPPORTUNITY



Whether as a location for manufacturing activities, as a sales territory, or as an investment field, Virginia presents a real opportunity. Natural resources, transportation, climate, growing markets and fair tax policies offer the essentials of prosperity.

For many years First and Merchants, as Virginia's largest bank, has been the leader in supplying banking facilities for business activities in many parts of Virginia and the South. Inquiries addressed to First and Merchants concerning business opportunities in Virginia will receive immediate attention.

FIRST AND MERCHANTS
National Bank of Richmond

John M. Miller, Jr., Chairman of the Board — H. Hiter Harris, President

CAPITAL AND SURPLUS SIX MILLION DOLLARS

Member Federal Deposit Insurance Corporation

King Cotton's Test Tubes

BY

Lawrence W. Bass

Assistant Director, Mellon Institute, Pittsburgh

DURING the last 150 years cotton production has risen to a dominant position in the economy of the South, largely through technological developments in the manufacturing industries for which it supplies the raw materials. The invention of the gin in 1793 was responsible for the opening of markets for American lint at home and abroad. The domestic textile industry took root through the establishment of the first spinning mill in New England in 1790, the first installation of power looms in 1815, and the invention of ring spinning in 1832. Although a cottonseed oil mill had been put into operation in 1793, the production of cottonseed oil did not become commercially important until about 1870.

The cotton industry, which enjoyed a prosperous growth for over a century, has experienced an alarming set-back in recent years, owing to continued high production of lint in the face of receding outlets, particularly in exports. The situation, which ultimately would constitute an economic catastrophe, must be fought with all available weapons. Scientific research, when properly employed, can be relied upon as a spearhead in the search for new uses, and as a shield for the maintenance of present outlets against competing materials.

The need for aggressive action was realized by a group of earnest, public-spirited men in Memphis and the surrounding territory. Through their cooperative efforts was formed in 1936-37 the Cotton Research Foundation, "a nonprofit corporation dedicated to increasing the financial return to the farmer per cotton acre by developing new uses for cotton and its products through scientific research." This organization is unique in that, for the first time, private individuals have unselfishly banded together to finance research for the benefit of an entire industry. The project is of national significance and has won support from many sources, notably in New Orleans, Houston, Atlanta, New York, and Chicago.

As a first step in its program, the Foundation established a Multiple Industrial Fellowship at Mellon Institute in July, 1937. One major reason for selecting this institution as a center for the research activities lies in the facilities afforded for expert advice from the scientists engaged on other projects—of which there are at the present time eighty, employing over two hundred research specialists—each relating to a separate field of technology. The staff of the Cotton Research Foundation Fellowship consists of three senior investigators and five assistants. The Institute serves also as an agency for the coordination and administration of the Foundation's research grants to Southern institutions, which are described later.

The working arrangement is to secure patent protection when possible on new products or processes. The patents thus obtained are the exclusive property of the Cotton Research Foundation, which will issue licenses covering their use to industry for nominal royalties. Any sums received under these agreements are to be used by the Foundation to support additional research projects.

During the first year much of the work was of an exploratory nature, to permit a sound selection of projects of greatest promise for intensive research. A considerable portion of this period was spent in an exhaustive study of the scientific literature for the purpose of summarizing critically all previous work having a bearing on the general problem.

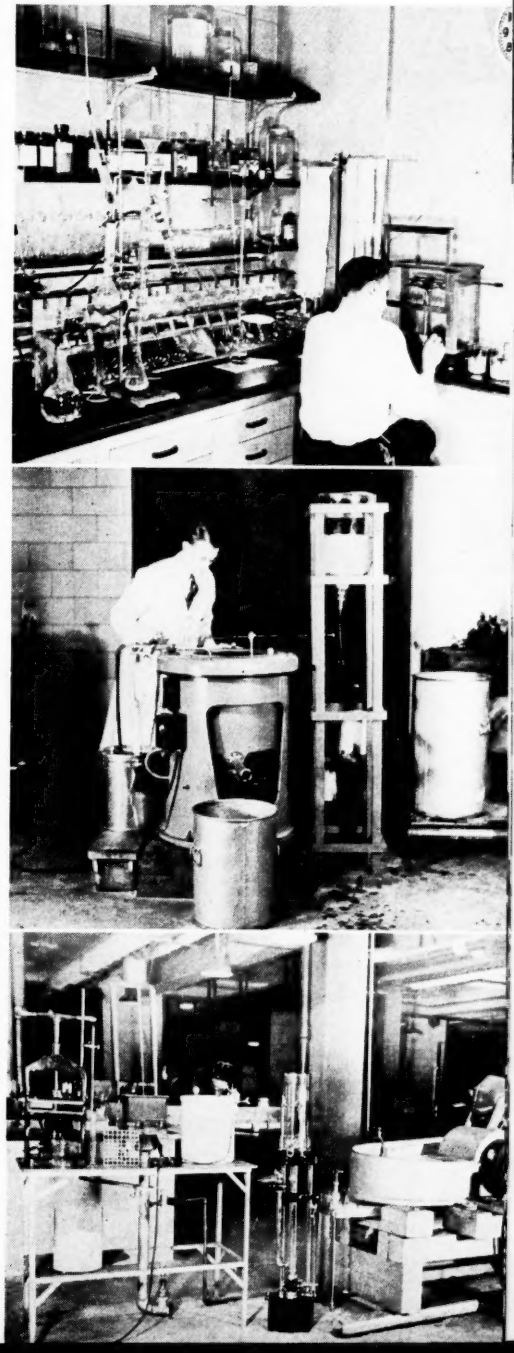
The program includes the development of new procedures for the utilization of any part of the cotton plant. Laboratory research on cotton stalks, for example, has revealed that wall board and other similar products can be made from this material. Whether or not such commodities could be manufactured economically in competition with other cellulosic wastes is a question that remains to be answered.

From the inception of the project it has been felt that, in lint utilization studies, emphasis should be placed on industrial textiles rather than on household and clothing materials, because in the latter cases styling overshadows to a considerable degree the technological aspects. Naturally, any basic advances in industrial cottons would probably be applicable to domestic products. Also, the notable increase in cotton consumption in industry in the past twenty years indicates this field to be a most promising point of attack.

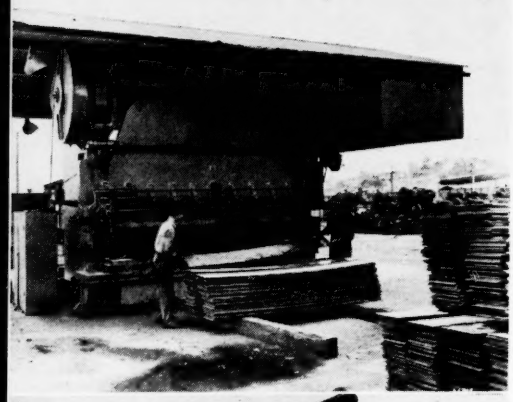
Tire fabric constitutes an extremely important outlet for cotton, amounting to as high as 750,000 bales per year. The severe challenge from rayon cords in heavy-duty tires has inspired a basic study aimed at the enhancement of the natural advantages of cotton, a subject which is of the greatest significance not only for advances in this particular application, but also for industrial textiles in general.

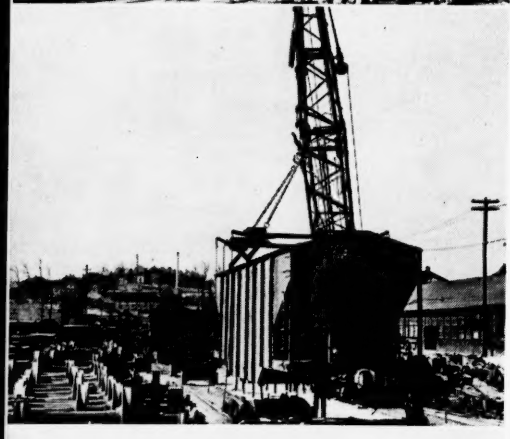
In recent years there has been a strong trend toward displacement of cotton sacks by paper bags and containers, particularly because of the greater resistance

(*Continued on page 56*)



Top—Part of one of the cotton research laboratories at Mellon Institute. The apparatus is used for determining nitrogen in cotton products. Center—A high-speed, large capacity centrifugal pilot plant used in separation of proteins from cottonseed. Bottom—A small scale plant for the study of paper making in which surplus cotton might possibly be used in pulp and paper products





Railroad Cars Reconstructed at Rate of one in 24 Minutes at Roanoke

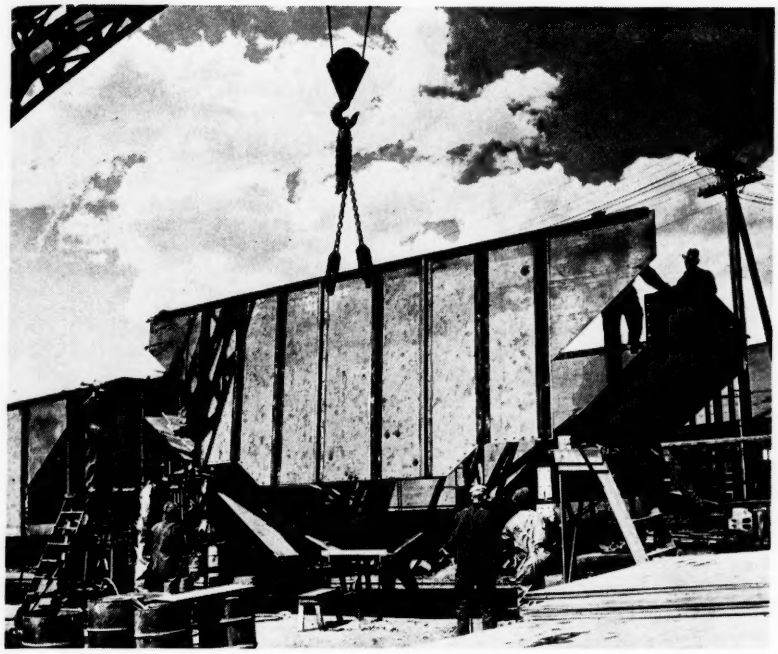
N. & W. uses assembly-line methods in 4,000-car program

CARRYING forward its program of maintaining its equipment at the highest possible standard of perfection, the Norfolk and Western Railway is now engaged in the rebuilding of 4,000 hopper coal cars (57½ tons capacity and classified as "HPa" and "HPb") at its Roanoke Shops. The project is one of a number which the railroad has undertaken in its own shops since the beginning of the depression for the double purpose of keeping its equipment modernized and to provide employment for its mechanical forces. Begun last year, the work is expected to require four more months to complete and is keeping 370 men busy for a total of 560,000 man-hours. In addition to the coal cars being rebuilt at the Roanoke Shops, 2,000 more are undergoing heavy repairs at the railway's shops at Bluefield, Lambert Point (Norfolk) and Shaffers Crossing (Roanoke).

Between 1930 and the end of 1938 the Norfolk and Western has spent more than 19 million dollars for building and rebuilding equipment at its general shops at Roanoke, alone. In addition to rebuilding the hopper coal cars, the Norfolk and Western has also constructed, this year, thirty-five 70-ton special hopper cars designed for the transportation of cement and other light material which requires adequate protection from the weather and is now completing, in addition, the building of ten new heavy freight locomotives—all at the Roanoke Shops.

Top to bottom—General view of the assembly line showing car rebuilding work in progress. Preparing to insert flat steel sheets in the machine for bending into side stakes for the coal car. The crane swings a car truck around for placing in position on the assembly line track. The crane lifting a rebuilt coal car body into position above the trucks. At bottom is a new car ready for freight use.

An interesting feature of the coal car rebuilding work is the use of an assembly line similar to those employed in the automobile industry for the application of the various parts of the cars as they are made ready. With the aid of this innovation the railroad finds it possible to turn out a completed unit every 24 minutes with a total of 20 cars being finished each 8-hour day. Preliminary fabrication work on the car ends and sides and on



Lowering the side of a coal-hopper car into position. Before application, the sides are prepared by being fitted up with side stakes on eight special tables upon which the rivets are driven.

the other fixtures is done on punching-and-bending and shearing machines, one of which is illustrated nearby.

Comprising 16 spots or "stations," the assembly line permits the rapid and efficient performance of more than 50 different operations simultaneously by groups of workmen located at each of the stations. The line begins, at Station 1, with the cleaning and painting (with red lead) of the old underframe and side sills of the car. At Station 2 the underframe is lifted from its own trucks and placed on dummy trucks, and in this position the draft gears are repaired and couplers are applied. At Station 3 the inside hopper sheets are applied, fitted up and reamed. At Station 4 the rivets are driven to the inside hopper sheets, coupler carriers, slack adjusters and center plates. At Station 5 the lower center floor sheets, including door hinge butts, are fitted to the inside hopper sheets and reamed. At Station 6 the lower center floor sheets and hinge butt angles are fitted. At Station 7 the ends and floor sheets are applied and reamed. These ends are prepared by being fitted up on a jig, where the hand brakes, top end angles, intermediate angles and ladder irons are applied.

For the average person looking on, interest materially rises, at Station 9, where the sides of the car are fitted to the frames. Before application, the sides are prepared by being fitted up with side stakes on eight special tables upon which the rivets are driven, and, at Station 8, the floors, sides and ends are reamed. Moving about underneath the car side, on a special stool equipped with casters, the rivet driver hammers in the rivets with his pneumatic hammer while another workman stands on top of the side and holds down the rivet with his entire weight concentrated upon it. This method of rivet-driving insures a tight fit.

Five cars are spotted at one time at Station 10, where the remaining riveting work is done in connection with the application of the car sides. The pipe work required for the air brakes is also done here and when the car leaves the station it is placed back on its original trucks.

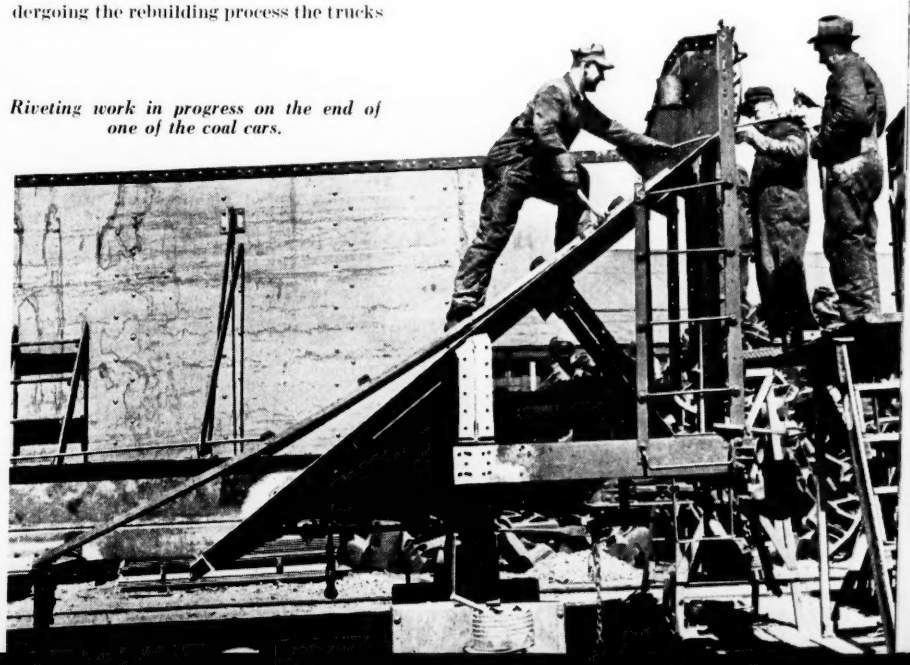
While the cars, proper, have been undergoing the rebuilding process the trucks are also receiving attention in another part of the freight car yard, on a parallel track. Here the wheels are renewed, if necessary, and such other items as truck bolsters, brake beams, brake hangers, and side frames are either repaired or replaced. The result is that when the cars reach Station 10 a new pair of trucks is in position and ready to receive the car.

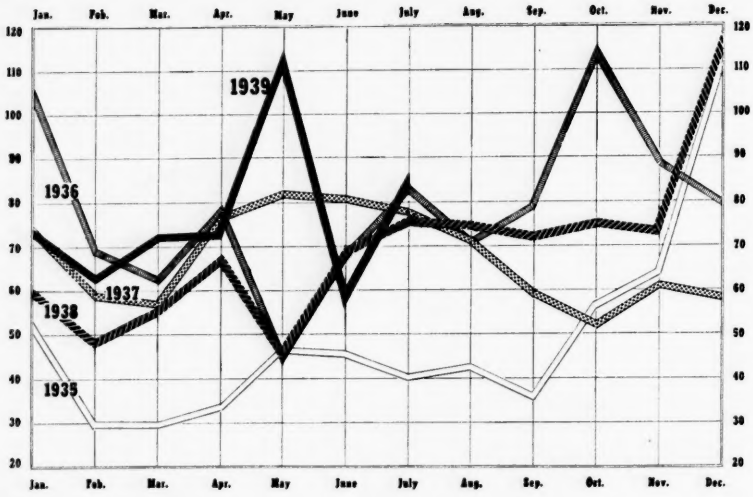
At Station 11 the welding of the car sides to the floor is begun and at Station 12 the door locks and card boards are fitted up and riveted. Station 13 is elevated three feet above the ground to permit the fitting, reaming and riveting of the drop doors and the making of all necessary repairs to the brake rigging, the adjustment of side bearings and the removal of brasses. The cars are pulled up to Station 13 by means of an electric winch and when one car is completed another is pulled up, pushing the completed car down the ramp and on to Station 14. Here all new work on the car is thoroughly cleaned, dust and dirt blown off, air brakes tested and the journal boxes packed.

At Station 15 the welding of the sides to the floors of the cars is completed and at Station 16 the finished units are painted with lead. The remainder of the painting is completed 72 hours later when two coats of black paint are applied. As soon as the final coat dries the stencilling is done, the cars are weighed, the weight stencilled and in the same evening the cars are delivered to the Yard Department for regular service.

In rebuilding the coal cars, Norfolk and Western mechanical men have incorporated noteworthy improvements, reducing the number of sheets in the car sides from 26 to six while the plates and angles in the floors and ends have been reduced from 16 to six. By using a smaller number of sheets and angles, the rebuilt cars contain more than 400 less parts than the former ones.

Riveting work in progress on the end of one of the coal cars.





Southern Contracts Up to $537,582,000

Total highest for 7-months since 1930

JULY'S aggregate of contracts for construction in the sixteen Southern States was the highest for any comparable month in the last nine years, as a slight increase in private construction and an accelerating public program brought the figure to $85,102,000.

The $537,582,000 seven-month accumulation likewise was the best since 1930, when extensive pipeline construction in mid-year swelled construction figures beyond any previous record for a similar period. The total for the first seven months of 1936—the year with the highest construction contract total for all time in the South—was surpassed by the current January-July total by almost six per cent.

Government construction of $378,955,000 represented seventy per cent of the work undertaken in the South so far this year, as compiled from projects listed in the daily issues of Construction. The remaining $158,627,000 was made up of privately financed work of both a general building and industrial nature, with the building placed at sixty-four per cent and the industrial projects at thirty-six per cent of this balance.

July's total is the second highest among the months of this year. It shows an advance of eleven per cent over the figure for the same month of last year, with Government and related projects still contributing a large measure of the contracts. Current July dam construction, rural electric lines, drainage and earthwork, and water works involved contracts totaling $18,356,000, whereas the same month of last year saw but $10,258,000 of such projects.

Public building is also up, as compared with July of 1938. Schools and public buildings in the seventh month of last year involved $11,809,000, which is approximately the value of the slum projects of the current July, when contracts for all public structures, including schools, slum clearance work and buildings for Governmental functions mounted to $26,819,000. Road and bridge work however, is down. In July of 1938 contracts of this nature aggregated $26,932,000, as compared with the $17,835,000 in July of 1939.

July figure rises above June work

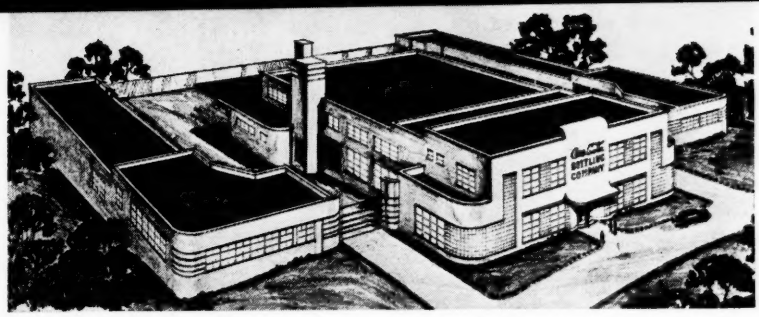
Industrial construction amounting to $9,316,000 in July was eighty-one per cent ahead of such contracts made during the preceding month. While two other months of 1939 were ahead of the July figure, it bettered the monthly average for the year by fourteen per cent. The majority of these awards were for smaller projects, with the $1,500,000 plant of the B. F. Goodrich Co. one of the most important in the sixteen states. Batson-Cook Co. received the contract.

Toward the end of the month, the Rustless Iron and Steel Co., at Baltimore made public the fact that the Cummins Construction Co. which sometime before was reported to hold the contract for buildings under a $1,300,000 expansion program, was proceeding with the work. Equipment to be installed in two new structures will include rolling mills for producing slabs, bars and wire roads, as well as facilities for the cold drawing of wire.

Between $3,000,000 and $4,000,000 is to be expended by the Bethlehem Steel Co. for three new units at its Sparrows Point plant, near Baltimore, Md. Ground has been broken for the buildings and according to S. J. Cort, general manager, the program includes installation of a cold-rolled tinplate department, a continuous mill for making small pipe and a unit for coating wire by electrolysis.

Statistics of South's Construction

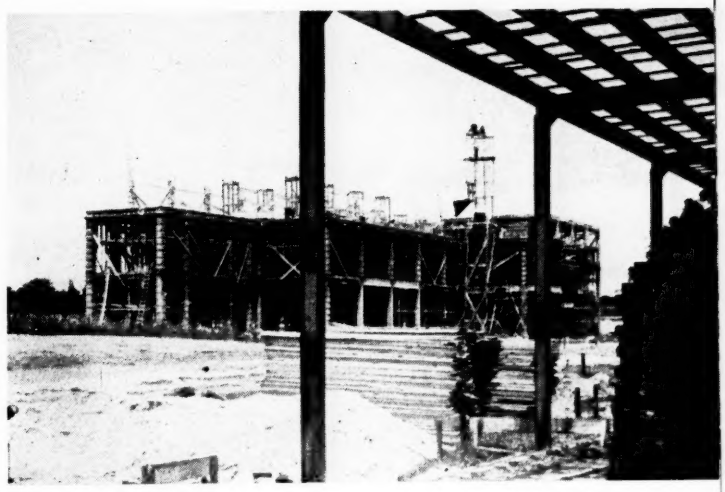
	Contracts Awarded July, 1939	Contracts to be Awarded July, 1939	Contracts Awarded First Seven Months 1939
PRIVATE CONSTRUCTION			
BUILDING			
Assembly (churches, theatres, auditoriums, fraternal)	$1,072,000	$1,831,000	$10,105,000
Commercial (stores, restaurants, filling stations, garages, etc.)	3,040,000	3,378,000	18,183,000
Residential (apartments, hotels, dwellings)	8,089,000	6,442,000	60,562,000
Office	575,000	2,955,000	12,572,000
	$12,776,000	$14,606,000	$101,422,000
INDUSTRIAL	$9,316,000	$9,969,000	$57,205,000
PUBLIC CONSTRUCTION			
BUILDING			
City, County, State, Federal	$11,079,000	$62,091,000	$82,130,000
Housing	11,802,000	14,738,000	38,661,000
Schools	3,938,000	6,062,000	48,732,000
	$26,819,000	$82,891,000	$169,523,000
ENGINEERING			
Dams, Drainage, Earthwork, Airports	$6,829,000	$37,078,000	$37,676,000
Federal, County, Municipal Electric	7,737,000	10,960,000	39,974,000
Sewers and Waterworks	3,790,000	2,692,000	20,250,000
	$18,356,000	$50,730,000	$97,900,000
ROADS, STREETS AND BRIDGES	$17,835,000	$22,451,000	$111,532,000
TOTAL	$85,102,000	$180,647,000	$537,582,000



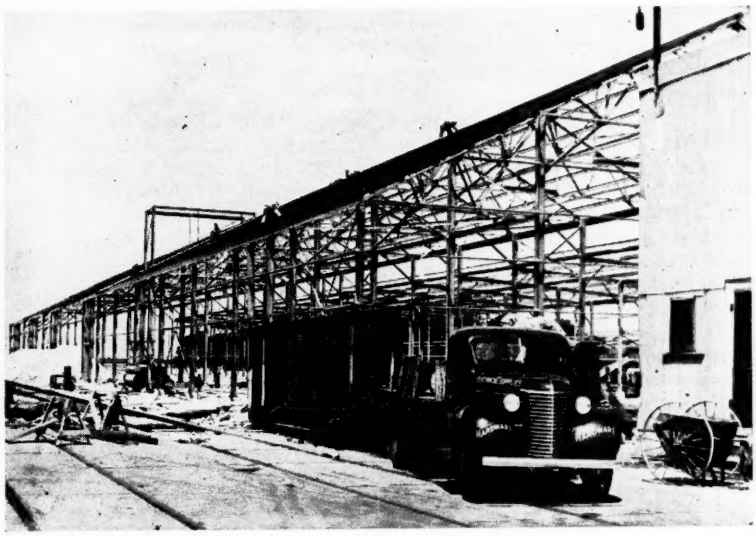
The $3,000,000 addition to the Champion Paper and Fibre plant at Houston, Texas, was the most important industrial project in immediate prospect. It is expected that stockholders tomorrow will approve the move, which involves a new unit to be equipped for manufacture of gloss finish and bond paper from pulp now being produced at Houston. H. K. Ferguson Co., of Cleveland, is doing the engineering for the project, which will take about 10 months to complete.

New facilities in the textile field included a $1,000,000 modernization program of the Appleton Co., at Anderson, S. C.; two buildings to cost $200,000 including machinery and a $25,000 filtration plant for the Muscogee Manufacturing Co., at Columbus, Ga.; a finishing plant at Liberty, N. C. for the Liberty Hosiery Mills to represent an investment of $100,000; as well as various projects of a lesser nature at Gainesville, Ga.; Thomaston, Ga., Burlington, N. C., South Pittsburgh, Tenn., and Pulaski, Va.

The new Coca-Cola plant at Asheville, N. C., will be one of the most modern bottling plants in the country. The plant and shops will have a total frontage of 290 ft. and extend back 229 ft. Right—one of the new buildings being erected in Harford County, Md., for the Bat'a Shoe Company. *(See page 28 for story.)*



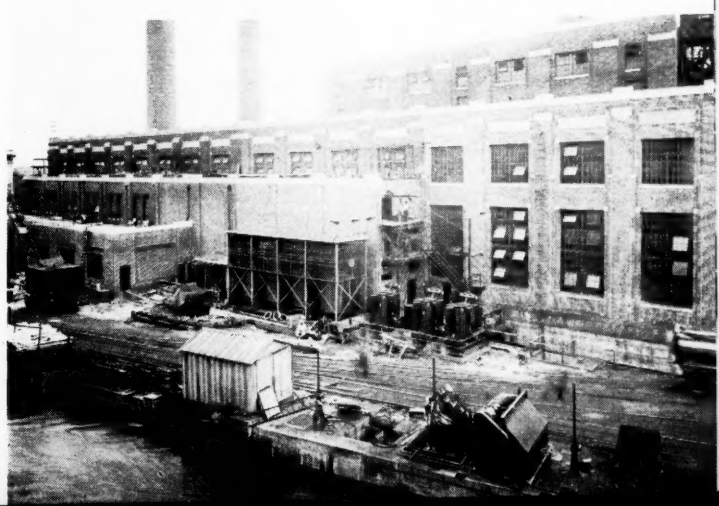
Western Electric Co., with a $400,000 project at Atlanta, Ga.; Joseph E. Seagram & Sons, Inc., with a big changeover program at Louisville, Ky.; Bethlehem Steel Co., with an addition to its Key Highway ship repair plant at Baltimore; Ingalls Shipbuilding Corp., with its proposal to construct three landing ways and dredge the river off its Pascagoula, Miss., plant; International Shoe Co., with a proposed plant at Fulton, Mo.; Pittsburgh Plate Glass Co., with a new warehouse and showroom at Corpus Christi, Texas; Eastman Kodak Co., in connection with a new Houston, Texas, laboratory; and Phillips Petroleum Co., with a projected 20-mile pipe line from League City, Texas, were among the prominent firms mentioned in the construction news during July.

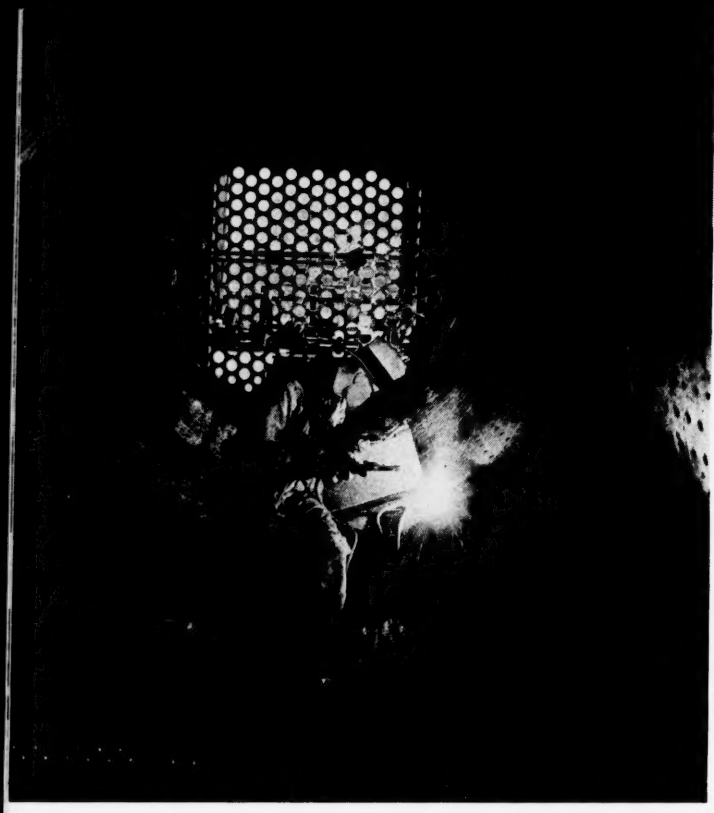


Commercial construction, such as stores, restaurants and filling stations, showed strength in July as compared with June, the $3,040,000 being slightly up. Important among the newly active projects was the $500,000 Hudson-Belk store at Raleigh, N. C. Plans for $375,000 store of the White Dry Goods Co., Beaumont, Texas, are soon to be ready for bids, Miller Brothers, of Rome, Ga., contemplate erecting a $100,000 store structure. J. A. Morrison, of Miami, Fla., is having plans prepared for a $100,000 store, including a cafeteria.

(Continued on page 40)

View from the southeast corner of the new Atlanta & Saint Andrews Bay dock and warehouse, showing its steel frame and the two marginal tracks which extend along the dock for the entire length of the building. The project is at Panama City, Fla., and is now practically finished. Right—The Virginia Electric and Power Company's Twelfth Street plant at Richmond, Va., where a $3,600,000 addition will soon be completed.





Eighty-Two Railroads Buy Supplies In Virginia

Welding throat sheet in a Boiler at the Norfolk & Western Railway's Roanoke, Va. shops

A SIGNIFICANT feature of the nation-wide survey of railway purchases recently conducted by the Association of American Railroads and Railway Age is the widespread and extensive use which it reveals of Southern manufactured products by railroads of the North and West. Virginia furnishes a striking illustration. Of one hundred leading railway companies canvassed in the survey, no fewer than eighty-two reported making purchases in Virginia during 1937. Fifty-two of these companies are located in the North and West and nine are located in the Southwest. Altogether, seventy-one railroads having no railway mileage in Virginia reported purchases from Virginia firms during the year.

However, by far the largest railway expenditures for fuel, materials and supplies in Virginia are made, as might be expected, by railroads which operate in the state. In 1937, a year of sub-normal railway expenditures owing to low earnings, both resident and non-resident railroads reported aggregate purchases in Virginia for fuel, materials, supplies and equipment of more than $1,000,000 a month, or upwards of $12,000,000 for the year.

Railway purchases in Virginia embrace a wide variety of products. The list is impressive. It includes cross ties, sawed lumber, poles and piling, tie plugs, tool handles, coal, bridge steel, car wheels, brake shoes for locomotives, rail joints, staybolts, track spikes, foundry products, radiators, copper and brass sheets and bars, wire cable, jacks, electrical supplies and equipment, hardware tools, cast iron pipe, paints and chemicals, cement, disinfectants, oxygen and acetylene, lubricants, rope and twine, commissary supplies, fire and building brick, uniforms, glass, roofing and many other items, not to mention heavy railway equipment. Railway purchases of tugboats and boxcars in Virginia totaled $1,284,000 in 1937.

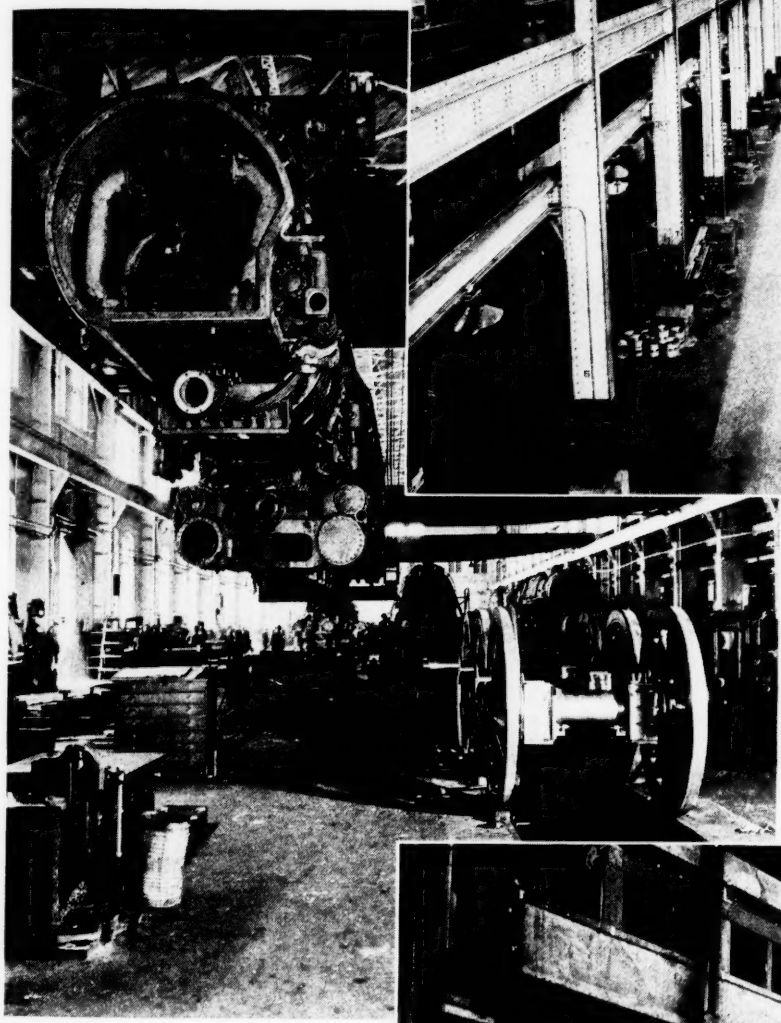
Railway buying is by no means confined to the larger industrial and commercial centers of the state. This is strikingly shown by the fact that in 1937 some but not all of the railroads reported purchases in 413 cities and towns in eighty-six Virginia counties. These widespread expenditures for fuel, materials, supplies and equipment increases production in many Virginia industries, and this spells increased employment of Virginia workers.

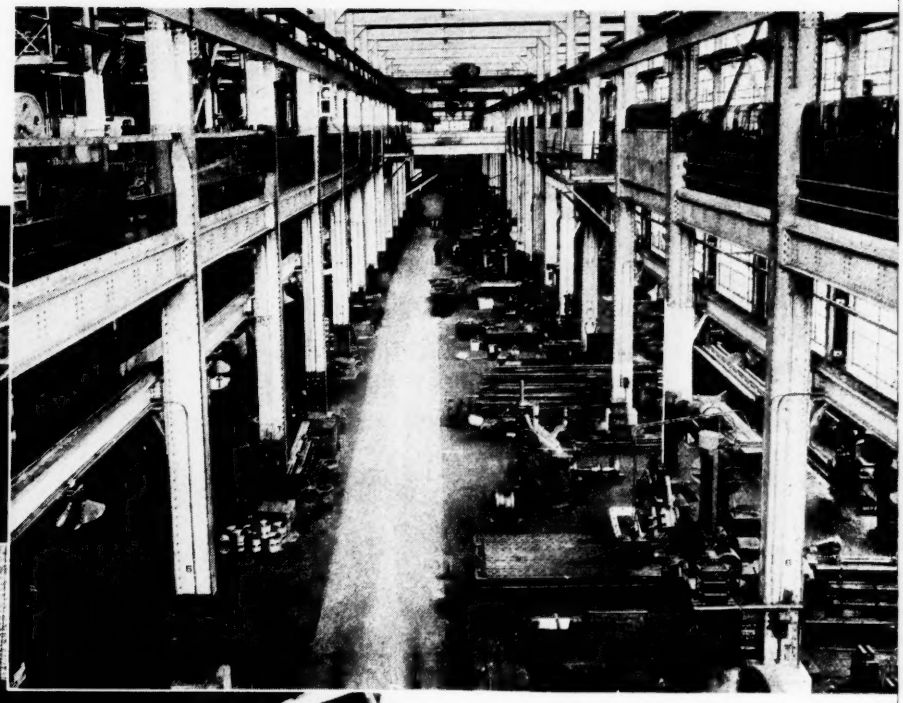
Railroads rank among the largest employers of labor in Virginia. Eleven of the twelve Class One railway companies operating in the state reported 33,600 active employes in July, 1937, the latest month for which figures are available. The aggregate Virginia payroll of these eleven railroads averaged $4,109,400 a month, or more than $49,000,000 for the year. If the payrolls of nine other railroads and three switching and terminal companies in the state were included, the figure would be increased, it is estimated, by at least $5,000,000 for the year.

Added to the millions which railroads spend in Virginia each year for plant operations are their large payments in taxes to local, county and state governments—payments which have been stead

Atlantic Coast Line's No. 31 train passing over the James River Bridge near Richmond, Va.

ily growing in volume in recent years. In 1935, railway taxes in Virginia amounted to $5,192,429; in 1936, to $5,282,102; in 1937, to $5,894,851; and in 1938, to $6,818,006, an increase in three years of $1,625,577, or 31 per cent, notwithstanding the fact that net railway operating revenues were actually less last year





Top—Norfolk and Western Railway's machine shop at Roanoke, Va. Left—One of the giant Class A Locomotives being built in the Norfolk & Western Railway's Roanoke shops. Bottom — Reconditioning coaches in the Seaboard Air Line Railway's shops at Norfolk, Va.

than in 1935.

It is estimated that 31.9 per cent of all railway tax payments in the state go to support the public schools. Based on the average cost of education per pupil enrolled, the railway school taxes in 1938 were sufficient to meet the annual cost of educating 45,930 Virginia children. Highway taxes paid by the railroads are sufficient to defray the annual cost of maintaining hundreds of miles of Virginia highways.

Still another group of railway expenditures, appropriately called "Forgotten Outlays" because they are unestimated and are frequently overlooked in evaluating railway contributions to community prosperity, are for miscellaneous services and purposes, such as telephone

(*Continued on page 58*)

Farmers' Market Sheds Aid Florida Producers

BY

William L. Wilson

Director, Florida State Markets

FLORIDA now is able to offer a fairly comprehensive and practical exhibit of modern farmers' market sheds, the physical plants designed to assist the farmer in finding a ready and economical means of selling his products. Up to the beginning of 1939 fifteen farmers' markets, owned, constructed, equipped and supervised by the state, had been built and were in operation in Florida, while five additional markets were in course of construction and will be completed in a short time. Others are projected for future construction.

These publicly owned farmers' markets are scattered all over the state of Florida, and vary in size from the turkey and chicken market at Branford, which is 40 feet wide by 60 long to the huge market at Plant City which comprises a loading platform and three large sheds—two 58 x 600 feet and another 96 x 600 feet.

Under a state law enacted in 1929 and amended in 1933, the State Agricultural Marketing Board—comprising the Governor, Commissioner of Agriculture and Commissioner of Markets—was created with authority to construct, equip and direct the operation of farmers' markets.

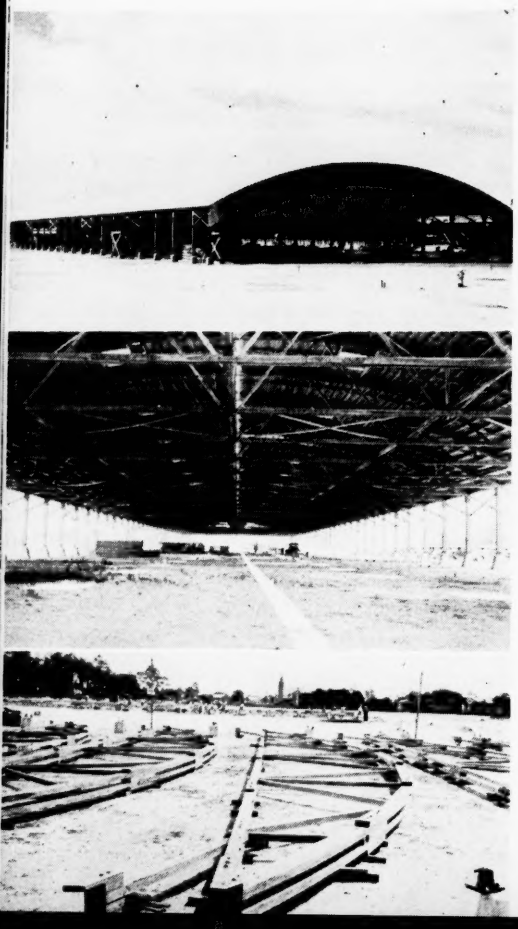
The first market, at Sanford, was such a success that the Board presented a program to construct five more markets. They also proved successful. At present, Florida has built and put into operation farmers' markets at Bonifay, Branford, Bushnell, Chipley, East Palatka, Live Oak, Ocala, Palmetto, Pensacola, Plant City, Sanford, Starke, Tallahassee, Wauchula, and the Miami Farmers' Market is affiliated. Markets are under construction at Arcadia, Florida City, LaBelle, Marianna and Pompano. Additional markets are being considered for other communities.

Experience has shown that the average small farmer will not haul his produce to a far away market. These markets also must compete with "selling in the field." Practically every market we construct and organize differs to some extent from the other markets as to matters of policy. When we decide upon a location for a new market we try to build one which will conform to the existing methods of sale in that locality, and when the market is completed we suggest operations as nearly the same as those in use in the community, so far as consistent with sound practices.

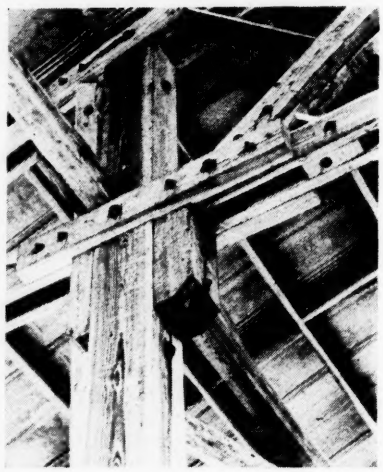
The Florida farmers' market sheds are interesting, not only because of the purposes they serve in bringing together the buyers and sellers of farm products, but also because of their construction features.

The principal building in each market is the selling shed. These are fairly uniform. The average floor space is thirty feet wide and the platform is truck high, arranged so that trucks can use both sides under an overhanging roof. Portions of some sheds are enclosed, but most of them are open. During the fiscal year ended June 30, 1938, the total business done by the markets then operating was in excess of two million dollars. This was done at a cost of a little more than two per cent. The Florida law forbids operating the farmers' markets for profit.

In the construction of Florida's farmers' markets Southern pine lumber has been used throughout. Lumber construction has been used not only because of economy and appearance, but also because its use allows a maximum of employment at the job site. We have been able to build more sheds because of our using lumber and its economy in cost, and have been able to provide the men of the state more employment. The framework of our buildings is bolted together, so the buildings can easily be taken down if it is desired to move the structure to some other point. If we have made a mistake in locating a market, it can be moved.



Top—Market shed at Plant City, Fla., with curved chord trusses. Center—Inside view show roof trusses in place and floor about to be laid. Bottom—The 96 ft. roof trusses are fabricated on the ground and then hoisted into place.



Section joint at column support for sheds with overhanging roof

A great many of the marketing sheds are rather large and it is essential to have all clear floor space, with no posts or supports from the floor to the roof to interfere. The roof supports are placed only along the sides of the sheds. This clear floor space is made possible through the use of relatively modern methods of construction to which lumber is adapted in a superior way for the fabrication of light-weight, but adequately strong roof trusses, by employing what is known as Teco Timber Connectors. The roof trusses probably are the most interesting feature of the construction employed in the market buildings.

The largest market thus far constructed by the Florida Marketing Board is that at Plant City. Two of the sheds there were built with an over-hanging roof, each with a roof span of 78 feet, and the third was built with a curved chord truss without overhang and has a roof span of 96 feet. The first two sheds have a clear floor space of 50 by 600 feet, and the third

(*Continued on page* 58)

New Hosiery Plant For Mississippi

IN its program to balance agriculture with industry, Mississippi counts among its newest accomplishments under the industrial act of 1936 the locating at Hattiesburg of a full-fashioned hosiery plant of the Julius Kayser & Company system.

Largest manufacturer of full-fashioned silk hosiery in the world for the retail trade, the Kayser Company expects to begin full operations of the first unit of its Hattiesburg plant by the end of 1939. Installation of eighteen 28-section full-fashioned single unit knitting machines and other necessary equipment in this first Southern plant of the organization is well under way, with several of the knitting machines being used at present in training employes.

Equipment now being erected, in addition to the knitting machines, includes 25 seaming machines, 40 of the latest type looping machines and 10 air-expanding examining forms, the latter a new development in the hosiery industry which speeds up the inspection of the completed product.

Most complicated of the machines at the plant are the knitting machines. Consisting of 272,000 separate parts in the knocked down condition in which they arrive at the plant, the machines, equipped with automatic welt-turners, cost $20,000 each when installed. The completed machines weigh 25,000 pounds and are 53 feet in length. Each machine produces 14 pair of hose at a time.

Shipped to the United States from Germany, only place where this type of single unit equipment is obtainable, the knitting machines are manufactured by Schubert and Salzer of Chemnitz. Assembly of the machines, each of which requires from 10 to 12 weeks, is being done by skilled mechanics, many of whom are from Germany. On completion of the installation of the entire eighteen, a factory mechanic from Chemnitz will inspect the entire unit.

Installation of the factory's humidification plant already has been completed. The equipment was manufactured and installed by the Bahnson Company of Winston-Salem, North Carolina. It is constructed to give a relative humidity of at least 65 per cent in the knitting room at all times and about 50 per cent in the looping and seaming departments.

The knitting machines are to operate on two shifts of 40 hours each per week, with the looping and seaming machinery working on a single 40-hour shift basis. Production of the first unit of the plant will range between 2,200 dozen and 2,500 dozen pairs of hose a week.

Officials of the Kayser Company plan to begin installation of a second unit similar in size and production capacity to the present unit immediately after the equipment now being installed is placed in operation.

Employment will be given to approximately 200 people by the first unit of the plant. Of this number the ratio is approximately 40 per cent men to 60 per cent women. Of the 65 persons employed at present, 25 are working on the installation of the machinery. The payroll anticipated in the contract with Beats 1 and 3 of Forrest County is $125,000 annually. It is estimated that this figure probably will reach $175,0000 to $200,000 and that these figures will be approximately doubled when the second unit is installed and operating.

The building occupied by the plant is owned by Beats 1 and 3 of Forrest County. A single story brick structure, the building has a total floor space available for use of 37,000 square feet. It is divided into two wings, one being approximately twice the size of the other. The larger of these will be devoted to knitting operations, with seaming, looping and inspection taking place in the other.

Present plans call for all hosiery manufactured at the Hattiesburg plant to be shipped to the main plant of the Kayser Company at Brooklyn, New York, for dyeing and finishing. It will be distributed on a national scale from the Brooklyn warehouses.

Factory officials express the belief that should conditions justify it, a finishing plant may be installed at Hattiesburg at a later date. For the present time the Mississippi operations will be confined to the manufacture of hosiery, although the firm in other plants makes dress fabrics, underwear, sleeping garments and gloves.

Effects of the new plant on the Southern market are already being felt, it was revealed by a Kayser official, who said that since Kayser had announced its policy of manufacturing a part of its output in the South, sales volume in the Southern states had increased noticeably. Production is not being curtailed in other sections of the nation or in overseas factories as a result of the Mississippi mill.

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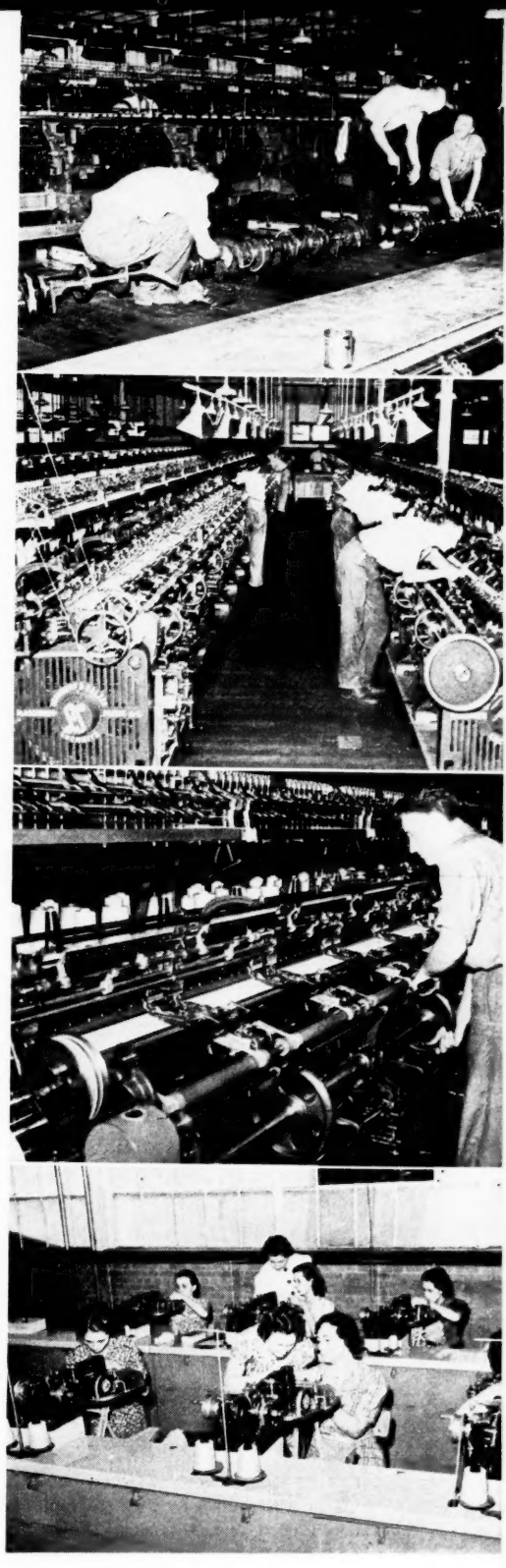
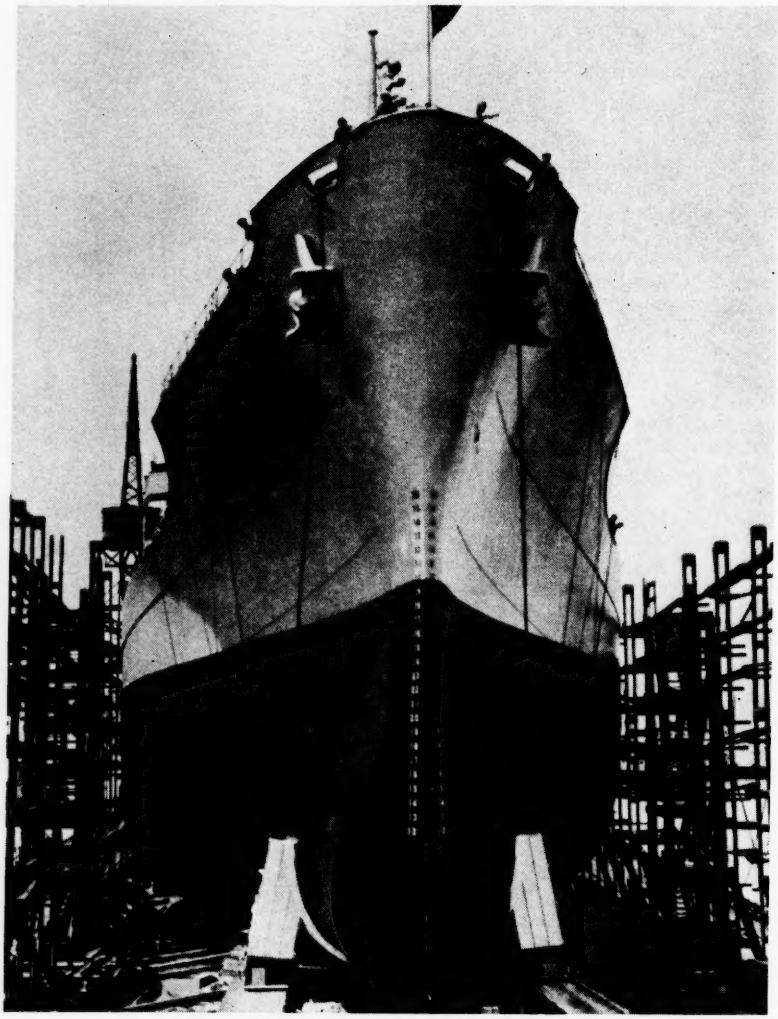


Top—Erectors at work assembling camshaft. Top center—Interior of Knitting room with knitting machine on left operating on welt. Erectors on right are assembling needle bars. Lower center—Setting a knitting machine in operation. Bottom—Girls in the looping department where toes and heels of the stocking are closed. General Electric fluorescent lights above the knitting machines provide artificial daylight

New High-Speed National Defense Tanker is Launched



The S. S. Platte sliding down the ways at the Sparrows Point, Md., yard of Bethlehem Steel Company where it was christened last month by Mrs. Harold R. Stark, wife of Admiral Stark, the new Chief of Naval Operations. The Platte, which has a deadweight of 16,300 tons and cargo capacity of over 6,000,000 gallons, is the first of three high-speed national defence feature tankers to be built for Standard Oil Company.

Navigation on the Tennessee River*

THE Tennessee river is now navigable to Chattanooga, with a minimum depth of 6 feet, this depth being controlled by the depth in the Florence Canal, just below Wilson Dam. After July 1, there will be a dredged channel of 10 feet in the canal. The minimum depth between Paducah and Chattanooga will then be 6.8 feet, being controlled by the depth at the head of Big Bend Shoals, below Pickwick Dam.

Between Chattanooga (Mile 464) and Chickamauga Dam (Mile 471) a depth of approximately 4 feet is available throughout the year, but this will be increased to 9 feet with the improvement of the Hales Bar Dam in 1942. In the meantime, in 1941, the Chickamauga Dam will be completed, extending the channel to the Watts Bar site at Mile 529.9. Water will be backed up the Hiwassee River making Charleston, Tennessee, 19 miles above the mouth, an accessible port on the Tennessee River system. It is anticipated that the Watts Bar project will be completed in 1943 and the Coulter Shoals project in 1944. The completion of the Coulter Shoals project will extend the channel to Knoxville, Tennessee, at the head of the river, 648 miles above its mouth. Upon completion of the Gilbertsville project in 1944 or 1945, a 9-foot channel will be available throughout the entire length of the river from its mouth at Paducah, Kentucky, to Knoxville, Tenn.

With regard to locks, there will be only 10 on the Tennessee River in the 648 miles between Paducah and Knoxville, or one lock for each 65 miles; whereas the average distance between locks on the Ohio River is only 21 miles, and on the Kanawha River 30 miles. It is estimated that 9,000,000 tons can be conveniently locked through the Wilson locks (double locks) in one year; 11,000,000 tons through the Hales Bar lock and 17,500,000 tons through the Wheeler lock. These tonnages greatly exceed any anticipated traffic for many years to come. After economic studies and other considerations, the Tennessee Valley Authority has concurred with the Army Engineers in adopting a standard lock, 60 feet by 360 feet, for that portion of the river above Wilson Dam, and a lock 110 feet by 600 feet for the river below Wilson Dam. At each of the locks above Wilson Dam, space is being provided for the installation of an additional lock 110 feet by 600 feet at any future time. Similarly, at each of the projects below Wilson Dam provision is being made for the future installation of of an additional lock 60 feet by 360 feet. So whenever the traffic demands it, additional locks can be provided alongside the existing locks. Upon completion of the ultimate project, one large lock and one small lock will exist at each dam.

Recommendations with regard to bridge clearances as made by a board of Army engineers are as follows:

Vertical clearance—57 feet above normal pool and 40 feet above extreme high water, whichever is the greater.

Horizontal clearance—350 feet below Chattanooga and 300 feet above Chattanooga.

Ultimately all bridges on the river will conform to the standard clearances. Where existing vertical clearances are so near the standard, the structures are being allowed to stand as they exist, unless it can be shown that they are an impediment to navigation, sufficient to justify their alteration. More leniency is being allowed regarding existing horizontal clearances than with vertical clearances. Recent surveys show that the vertical clearances of Scottsboro highway bridge

(*Continued on page* 56)

*Information furnished by C. T. Barker, Chief, River Transportation Division, Department of Commerce, TVA, Knoxville, in reply to inquiry of the Chattanooga Chamber of Commerce.

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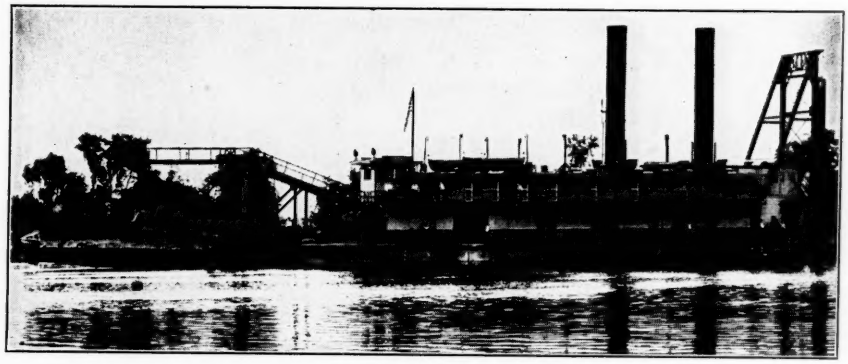

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Southern Contracts Up to $537,582,000

(*Continued from page* 33)

The $37,676,000 total of contracts for dams, drainage, earthwork and similar projects in the first seven months of 1939 indicates the large amount of work under way in the heavy construction field, where many additional projects will be launched soon as the U. S. Army Engineers prepare to ask bids on the numerous authorizations for which funds have been made available during the fiscal year starting July 1. One project which is soon to contribute largely is the Santee dam of the South Carolina Public Service Authority. Bids now being advertised are to be opened August 29. The project is the largest of two such barriers, one of which is already begun, under a $37,500,000 program for developing the Santee and Cooper rivers in the State.

New Industrial Plants and Expansions in the South During July, 1939

Andalusia, Ala.	Rebuild Peanut Shelling Plant	Anderson Peanut Co.
Mobile, Ala.	Palm Oil Plant	$50,000 Pan-American Shell Corp.
Selma, Ala.	Cold Storage Locker Plant	Purity Ice Co.
Tuscaloosa, Ala.	Building	Southern Bell Telephone & Telegraph Co.
Arkansas	Rural Electric Lines	200,000 Arkansas Power and Light Co.
Arkansas	Gasoline Extraction Plant	Shell Oil Co. and Atlantic Refining Co.
Hot Springs, Ark.	Broadcasting Station	C. E. Palmer
Washington, D. C.	Warehouse-Office Building	Pittsburgh Plate Glass Co.
Washington, D. C.	Garage	30,000 H. A. Thrift, J. S. Gruver
Washington, D. C.	Truck Repair Building	38,000 Raymond Gittleman
Miami, Fla.	Building	Growers Cold Storage Corp.
Miami, Fla.	Warehouse	45,000 Florida Sugar Distributors
Orlando, Fla.	Box Plant	Great Southern Box Co., Inc.
Panama City, Fla.	Broadcasting Station	Panama City Broadcasting Co.
Albany, Ga.	Milk Depot	Stocks Dairy & Farms, Inc.
Atlanta, Ga.	Freight Terminal	Dixie Freight Lines
Atlanta, Ga.	Plant Building	400,000 Western Electric Co.
Atlanta, Ga.	Factory Building	51,000 Atlanta Metallic Casket Co.
Atlanta, Ga.	Factory, Office Building	Southern Wire & Iron Works
Columbus, Ga.	Two Buildings	200,000 Muscogee Manufacturing Co.
Dallas, Ga.	Bulk Station	Standard Oil Co.
Gainesville, Ga.	Building Addition	Pacolet Mills
Montezuma, Ga.	Peanut Plant	40,000 Kroger Grocery & Baking Co.
Moultrie, Ga.	Radio Station	Frank P. Pidcock, Sr.
Savannah, Ga.	Ready Mixed Concrete Plant	Espy Paving & Contracting Co.
Thomaston, Ga.	Warehouse	B. F. Goodrich Co.
Thomaston, Ga.	Cotton Warehouse	Thomaston Cotton Mills
Kentucky	Natural Gas Pipeline	General Gas Pipe Line Co.
Louisville, Ky.	Bottling House Changeover	Joseph E. Seagram & Sons, Inc.
Louisiana	Natural Gas Transportation Facilities	Louisiana-Nevada Transit Co.
Baton Rouge, La.	Plant	Hundred Oaks Dairy
Baton Rouge, La.	Plant	Oak Grove Dairy
Lake Charles, La.	Synthetic Salt Cake Plant	Mathieson Alkali Works
St. Francisville, La.	Sweet Potato Starch Plant	Warriner Starch Co., Inc.
Baltimore, Md.	Expansion Program	3,000,000 Bethlehem Steel Co.
Baltimore, Md.	Factory Addition	1,000,000 Rustless Iron & Steel Corp.
Baltimore, Md.	Building	Becker Pretzel Baking Co., Inc.
Baltimore, Md.	Bakery Addition	John C. Springer
Baltimore, Md.	Warehouse	25,000 National Distillers Products Corp.
Baltimore, Md.	Laundry Addition	Kirmo Laundry
Wheaton, Md.	Transmitter Station	Station WJSV
Jackson, Miss.	Hosiery Plant	55,000 Clark Mills
Pascagoula, Miss.	Landingways and Dredge	Ingalls Shipbuilding Corp.
Winona, Miss.	Bedspread Factory	24,000 Winona Bedspread Co.
Fulton, Mo.	Plant	International Shoe Co.
Kansas City, Mo.	Plant Extension	Manor Baking Co.
St. Louis, Mo.	Substation Addition	Union Electric Co. of Missouri
St. Louis, Mo.	Factory and Office	Ritepoint Company
St. Louis, Mo.	Oil Refinery	R. G. Matthews
St. Louis, Mo.	Garage, Office, Loading Dock	Be Mac Transportation Co., Inc.
Albermarle, N. C.	Milk Receiving Station	Carnation Milk Co.
Burlington, N. C.	Knitting Mill Addition	25,000 McEwen Knitting Co.
Charlotte, N. C.	Plant Improvements	50,000 American Bakeries Co.
Durham, N. C.	Manufacturing Plant	65,000 Borden Brick & Tile Co.
Greenville, N. C.	Radio Station	J. J. White
Liberty, N. C.	Finishing Plant	100,000 Liberty Hosiery Mills
New Bern, N. C.	Dry Kiln Repairs	Slater Lumber Co.
Anderson, S. C.	Loom Installation	1,000,000 Appleton Co.
Bishopville, S. C.	Planing Mill, Dry Kiln, Lumber Yard, Reconstruction	W. T. Royer Lumber Co.
Chesnee, S. C.	Cotton Gin Reconstruction	Victor Cotton Oil Co.
Clio, S. C.	Cannery	Apte Brothers
Greenville, S. C.	Paper Box Plant	50,000 Palmetto Box Co.
Chattanooga, Tenn.	Terminal and Grain Elevator	Mountain City Mill Co.
Clarksville, Tenn.	Plant	1,500,000 B. F. Goodrich Tire & Rubber Co.
Cleveland, Tenn.	Plant Addition	Cleveland Tennessee Enamel Co.
Lenoir City, Tenn.	Factory Building	100,000 Lenoir Co.
Memphis, Tenn.	Storage Facilities	56,000 Standard Oil Co.
South Pittsburg, Tenn.	Plant Improvement	Star Woolen Mills
Texas	Plant	Karges Furniture Co.
Texas	Oil Station	Magnolia Petroleum Co.
Brady, Tex.	Warehouse	Brady Co-Operative Poultry Asso.
Brownsville, Tex.	Branch Plant and Warehouse	25,000 Angly Lumber Co.
Corpus Christi, Tex.	Warehouse, Show Room	47,000 Pittsburgh Plate Glass Co.
Dallas, Tex.	Bakery	Campbell-Taggart Associated Bakeries, Inc.
Denison, Tex.	Ice Cream Machinery	Barker Dairy Co.
Houston, Tex.	Erect Building	J. R. Keig (Standard Electric Co., Lessee)
Houston, Tex.	Mill Addition	3,000,000 Champion Paper & Fibre Co.
Houston, Tex.	Bottling Plant	150,000 Vernors Ginger Ale Co.
Houston, Tex.	Bronze and Aluminum Plant	Francis Metal Door & Window Corp.
Houston, Tex.	Shop and Office Building	Brock Pattern Works
Houston, Tex.	Laboratory	25,000 Eastman Kodak Co.
League City, Tex.	Oil Pipeline	Phillips Petroleum Co.
San Antonio, Tex.	Plant Repairs	Swift & Co.
San Antonio, Tex.	Loading Dock Addition	Hoffman-Hayman Coffee Co.
Texas City, Tex.	Dock and Crane	400,000 Seatrain Lines, Inc.
Three Rivers, Tex.	Refinery	Three Rivers Refinery
Pulaski, Va.	Office Extension	Virginia Maid Hosiery Mills
Pulaski, Va.	Extension	40,000 Wallner Silk Hosiery Mills
Richmond, Va.	Garage Building	Railway Express Agency, Inc.
Riner, Va.	Milk Receiving and Cooling Station	Carnation Co.
Suffolk, Va.	Broadcasting Station	Suffolk Broadcasting Corp.
Gypsy, W. Va.	Mine Improvements	Katherine Coal Mining Co.

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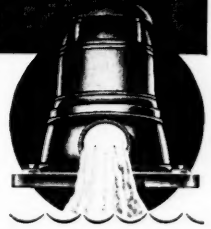

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How many do you know?

THE South is coming fast. In some lines it is already here and in others its future is assured because no other section has similar resources and advantages.

It has been charged that the South is the No. 1 economic problem of the nation. The problem exists not as the statement was intended, but as a problem growing every day in the minds of competitive business men. Producers of other areas will find as times goes on that they will have to reckon more and more with producers of the South.

Although increasing recognition is being given the South's industrial accomplishments, comparatively little is known, even among Southerners, of just what the South has to offer in the way of industrial opportunity and what is being done about it.

How many of the questions on this page can you answer? The answers have a definite bearing on the South's development. This month the answers are printed on page 58. Other questions will be carried in this place from time to time in coming issues. The answers may or may not be given. Perhaps a contest will be developed with cash prizes for high scores made. Your comments about this idea and the type of questions asked with any suggestions that come to mind will be welcome.

The thought can be expanded in a number of interesting ways using the informality of this page as a clearing house or meeting place for all kinds of information about the industrial South.

1. *The South's foreign-born population is (a) 3.15%, (b) 7.45%, (c) 12.44%, (d) 16.32% of its total population.* .....

2. *In 1937, the latest year for which census figures are available, did (a) the South, and (b) the rest of the country increase or decrease its number of manufacturing establishments with an annual output of over $5,000 value? (a)* ..... *(b)* .....

3. *Approximately what percentage of American life insurance is written in the South?* .....

4. *Aggregate bank resources throughout the country exclusive of the South decreased $639,000,000 during 1938. Did the aggregate resources in Southern banks decrease or increase, and how much?* .....

5. *The value of manufactured products in the South for 1937 was approximately eleven and a half billion dollars. Is this (a) a decline of 15% from, (b) nearly the same as (c) a gain of 35% over, or (d) nearly double the 1935 figures?* .....

6. *Up to the War between the States, the vast majority of Southern cotton was spun in Northern mills, but now (a) half, (b) three-quarters, (c) 95% is spun in Southern mills.* .....

7. *The South's commercial forest area of 217,022,000 acres is (a) one-tenth, (b) one-half, (c) nine-tenths, (d) all of its entire forest area.* .....

8. *In 1937, the South produced (a) 10%, (b) slightly under 25%, (c) over 40%, (d) about three-fifths of the nation's timber.* .....

9. *The South produces all of the country's (a) fertilizer, (b) naval stores, (c) cotton.* .....

10. *Did the cash farm income per acre in the South increase or decrease during 1938?* .....

11. *The South's cash income from crops in 1938 was (a) about the same as, (b) half again as much as, (c) twice as much as its cash income from livestock and livestock products.* .....

12. *There were nearly 800,000 more acres of cotton planted than there were harvested during 1938. What were the three main causes of this?* (1) ..... (2) ..... (3) .....

13 *The South produces all of the nation's (a) peanuts, (b) corn, (c) tobacco.* .....

14. *Knowing that the value of the minerals produced in the United States in 1937 was approximately $4,700,000,000 would you say that the value of Southern minerals was (a) one billion, (b) two billion, or (c) three billion dollars?* .....

15. *Were it not for one mineral found in Alabama, Arkansas and Georgia, the housewife would be set back ten years in the matter of kitchen utensils. What is the mineral?* .....

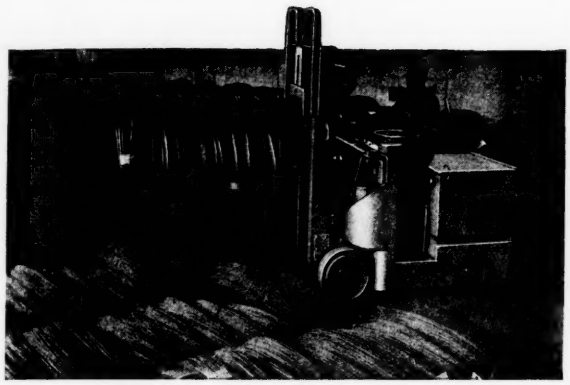
16. *The average per year of Southern contracts for construction since 1936 has been (a) slightly less than $500,000,000, (b) more than $800,000,000, (c) approximately a billion dollars.* .....

17. *Which, of the sixteen Southern states, has the smallest gasoline tax per gallon?* .....

18. *Is more electricity produced (a) in the South (b) in the United States by water power or by fuels? (a)* ..... *(b)* .....

The information upon which these questions are based is contained in the 1939 Blue Book of Southern Progress. This volume is replete with data pertaining to the South's resources and wealth both developed and undeveloped.

Answers appear on page 58 of this issue.



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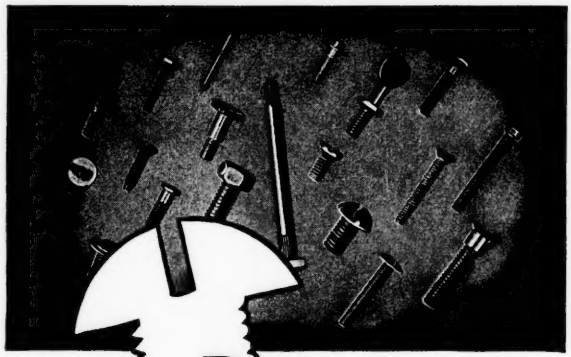

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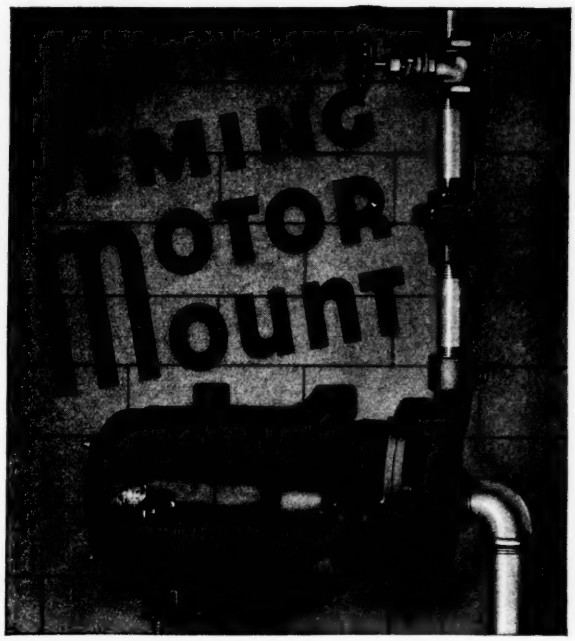

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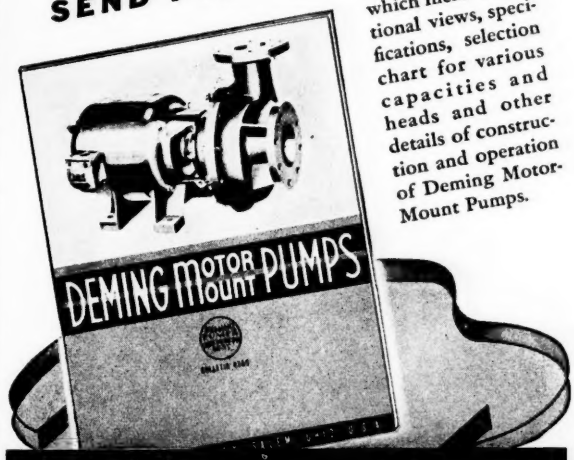

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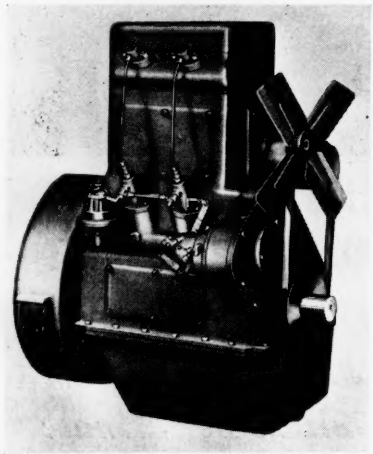
New Ways of Doing Things

Diesel-Generator Brings Expansion

Due to the development of a new model Diesel Electric Power and Generator Set, the Hill-Diesel Engine Company of Lansing, Mich., is now engaged in an extensive expansion program, marking another advance in the adoption of the Full-Diesel principle to smaller power and light unit. Since its establishment in 1898, the company has concerned itself entirely with the manufacture of oil and gas engines, and for the past twenty years with the Diesel exclusively, largely for power and lighting equipment for yachts, fishing boats, and Government vessels. The new Hill is a refinement of the Diesel which has been very popular — a two-cylinder engine with 5 to 7½ Kilowatt generator—to provide light and power for small manufacturers, for irrigation, mining and kindred "off the power line" industries, as well as for lighter night loads and reserve standby light and power. The engine will also be sold separately as a small power unit, with reverse gear, for marine uses.



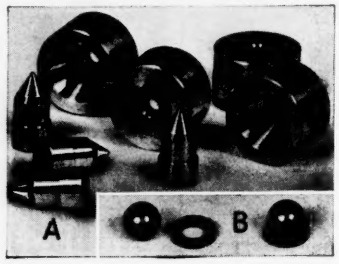
Hill-Diesel Model 2R for Variety of Power and Light Requirements.

"NUSITE" Process for Hardening Steels

Heavier cuts and feeds at normal or even slightly increased speeds, together with longer tool life, are claimed to be possible now with cobalt high speed steel when hardened by the "NUSITE" process, which has recently been taken over by the Perfection Tool and Metal Heat Treating Company, 1740-46 West Hubbard Street, Chicago, Ill., a commercial heat treating firm of more than 20 years' standing. Extraordinary strength and toughness result from the treatment, it is declared, at the usual hardness for cutting tools, and while the process is not a "cure-all," it fills the gap between high speed steel as ordinarily hardened and various carbides.

Kennametal Pump Valves

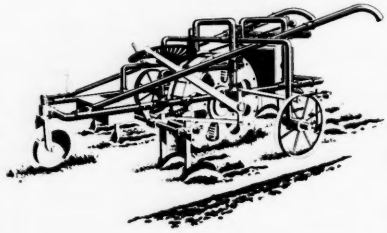
Pump valves and other valves subject to unusual abrasive or corrosive action are now being successfully made of Kennametal, it is announced, a new intermetallic compound of tungsten-titanium carbide, manufactured by McKenna Metals Co., Latrobe, Pa. Recent tests are declared to indicate that valves made of this material will wear longer than valves made of other materials. Tests conducted by a large oil well equipment manufacturer demonstrated the superior strength of Kennametal balls and seats for well pump valves. The balls were hammered against seats of Kennametal by a pneumatic hammer, using 300 blows per minute of ram, 25 pounds per square inch air pressure and 3/32-inch play between ram and ball and seat. After 105 minutes of hammering, the valves were still serviceable. Kennametal valves also show superior resistance to corrosion in the waters of Louisiana oil wells. Kennametal can be supplied in any desired shape for valve parts and in three grades having varying physical properties.



Kennametal Pump Valves, etc., for Long Wear.

McCrary Tractor-Cultivator

For centuries farmers have used plow animals for the cultivation of row crops and still have to do so to a great extent, although many attempts have been made to provide a mechanical substitute. Some of these attempts have proven more or less successful, but not for all row crops from the time of planting to harvest, on diversified farms. The McCrary Tractor-Cultivator, introduced by McCrary Manufacturing Company of York, Pa., is claimed to be the first machine to ride or walk, that will plow, disc or cultivate. It is small, light, easy to handle, economical in operation, and will work between narrow rows, adaptable alike in a 10-foot garden or 40-acre field, using a single traction wheel tandem plow and gyroscopic control, the latter tending to hold the tractor wheel upright. The machine is designed especially for the work done by one-horse plows, the engine being 5 horsepower, and the entire frame made of standard tubing.



McCrary Tractor-Cultivator for all purposes.

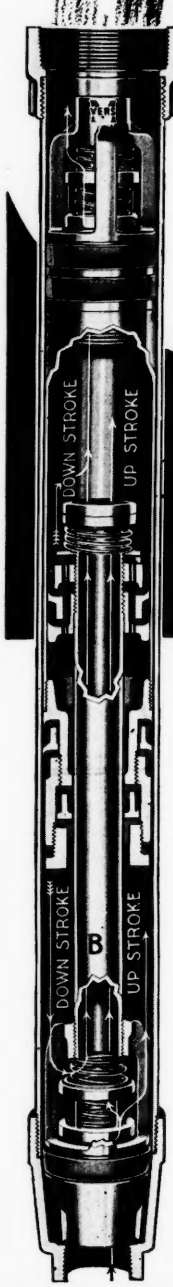
Swift Electric Suction Cleaner

Pointing out that heating plant cleaning is an economic necessity and, although it has been handled as a side line up to this time, it may be made a major public service, Carl E. Swift, president of The Carl E. Swift Corporation of Holland, Mich., manufacturers of the Swift Electric Suction Cleaner, observes that its economy does not stop with the direct benefits to the home owner, but concerns both the manufacturers of heating plant equipment and fuel merchants, particularly coal dealers. The Swift Suction Cleaner is designed to efficiently remove soot and fly ash from furnaces and chimneys. It is self-contained, built into the form of a trailer with quick detachable auto hitch, its over all length being 8 ft. 3 inches, width 4 ft. and height 4 ft. 10 inches. The trailer is of welded steel construction and the heavy sateen canvas dust bag is 33 ft. long by 6 ft. in diameter.

Swift Suction Cleaner Designed for Fast and Efficient Service.

Claimed to be different from anything heretofore used in the operation of air movement, the fan uses two sets of blades —one a set of straight blades so arranged that high velocity air movement is accomplished at the intake, with extremely low power input because of their comparatively small diameter, from which the air is picked up by curved blades of greater diameter and discharged through an orifice of such dimensions that back pressure in the bag is avoided. All cleaners are equipped with General Electric ball bearing, A.C. 110-220 volt, 60 cycle, 1800 r.p.m. repulsion induction motors. The fan is mounted directly on the motor shaft, thus eliminating the necessity of belts or gears and, as the motor and fan are the only moving parts, they become the only parts subject to wear in operation. All flexible hose, metal pipe, brushes, scrapers, and other accessories for fast and efficient cleaning, are furnished with the unit.

A GUSHER of SALES and Satisfaction with MYERS DOUBLE ACTING CYLINDERS



Today Myers brings you the most modern, the most dependable double acting cylinders on the market. There is nothing experimental about them. Designed by experts, built to precision standards, their reputation for dependable and economical service is firmly established in pump circles the country over.

Whether conditions are regular or otherwise, Myers Double Acting Cylinders satisfactorily solve most deep well pumping problems. They furnish the plus volume of water that lowers pumping costs and satisfies the most critical of users.

If you require more water from any source at lower cost than is possible to secure by ordinary methods write us for circular and complete information.

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PUMPS - WATER SYSTEMS - HAY TOOLS - DOOR HANGERS

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for Screening, Grading, Ventilating or any industrial purpose. Also Grilles of many beautiful designs.

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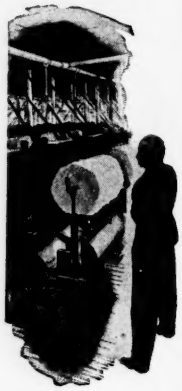
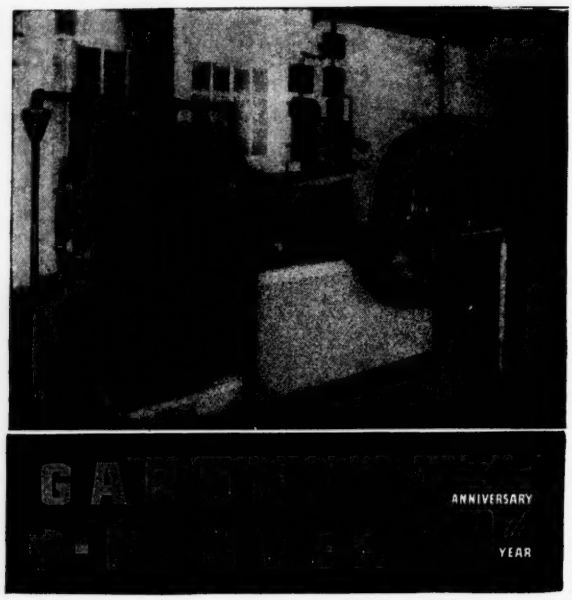


In Lint Cleaning and Cotton Carding...Use GARDNER-DENVER Dry Vacuum Pumps!

The way to prevent interruption in lint cleaning and in removing short fibers from cotton carding machines is to use a vacuum pump that's especially built for such *service*. And that means a GARDNER-DENVER "RXV" horizontal single cylinder dry vacuum pump. Here's a vacuum pump designed in every detail to operate continuously—dependably—with never a shut-down.

What's more, a Gardner-Denver dry vacuum pump will *save* you money. These pumps have liberal valve areas in order to require the minimum power input at the low vacua required during regular operation. For high vacua, Gardner-Denver "RXV" pumps are arranged for two-stage operation. Gardner-Denver "RXV" pumps have Duo-Plate Cushioned Automatic plate valves that actually become tighter with use. Discharge valve areas are equal to that of suction valve areas. Vacuum cylinders are Gardner-Denver special alloy iron—close grained and high in tensile strength. Cylinders and heads are water-jacketed.

Write for full information about the efficiency you can obtain—and the savings you can make—with Gardner-Denver "RXV" Dry Vacuum Pumps. Complete facts are yours for the asking! Gardner-Denver Company, Quincy, Illinois. Branch Offices: Atlanta, Ga.; Birmingham, Ala.; Knoxville, Tenn.; Dallas, Texas; Houston, Texas; Washington, D. C.



» » » *Finance* « « «
AND KINDRED SUBJECTS

Congressional Independence at Last

The effect of the revolt of Congress, it is safe to predict, will be seen before long in the investment market. Capital needed for private enterprise, although wanting profitable outlets, has been timid a long time because of government competition and laws that have discouraged initiative. As Congressional refusal to sanction the late-hour spending bills which would have run into billions is seen in its true light, the significance of what has taken place is bound to have an energizing effect upon business.

As Congress adjourned, some of those who were disappointed by the failure of their pet measures to pass saw fit to express belief that returning Congressmen who brought about the defeat of the New Deal objectives will find their constituents at variance with the majority vote, and furthermore, that the same measures which are to be pressed again when the new Congress convenes will later be successful. All of which may be taken with a large grain of salt.

The general opinion of the business community undoubtedly is that the country has been saved from disaster, and that the New Deal with all its bewildering reforms and regulations covering so many phases of human activity must change virtually its entire approach to the country's problems if it is again to meet with any sort of favor.

The philosophy back of the spending of so many billions, which is expressed by "borrowing from ourselves" indicates how short-sighted has been the view which has incurred a debt beyond all figures of previous history. It is that which now faces the country, and the sooner we set about the economy necessary to meet it, the more quickly will affairs assume a more normal state. Spending ourselves into prosperity has become outmoded and proven to be the wrong way to try to advance. Congress may have been jealous of its prerogative. Its members may have read the portents affecting their political future, but as stated elsewhere, the MANUFACTURERS RECORD believes business is drawing its breath with greater ease and with more belief in the future than it has for a long time.

Without Borrowing

Executives of some of our largest industries told a Senate Committee recently they had financed their own expansion programs from surplus and had not borrowed from banks. Probably this does not reflect anything like a widespread capability in many industries, but it is a fact that may cause some concern to the banking fraternity.

In a period such as we have been living through in recent years idle money accumulates rapidly and even with the low rates asked for it, management has not felt inclined to borrow when idle funds were available.

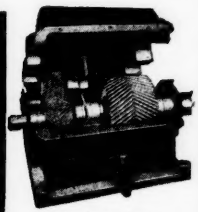
To what extent private enterprise may expand without adding either to capital obligations or bank loans is an interesting question.

R. F. C. Surplus

Reconstruction Finance Corporation with all expenses paid has an earned surplus of $251,000,000. This will more than cover all losses incurred through loans according to Jesse H. Jones, retiring chairman.

(*Continued on page* 48)

LINK-BELT *Speed Reducers*



Herringbone Gear Speed Reducer

● The three improved types of reducer units included in the Link-Belt line—Herringbone Gear, Worm Gear, and Motorized Helical Gear—meet today's needs for the dependable transmission of power at accurate speeds. Send for catalogs. Address the nearest office.

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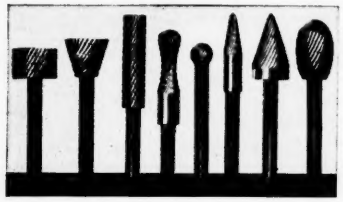

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TO RAISE PANELS ON A SHAPER——

is no trick at all if one is prepared with a Shimer Panel Raising Cutter to fit the spindle of the Shaper. This Cutter, moulded to agree with the shape of the panel and provided with clearance, furnishes a permanent and free-cutting instrument that any practical man will appreciate because he can do so much with it. Made to cut either clockwise or anti-clockwise, in 34 or more distinct shapes—to suit the most particular person.

Write us for further information, giving sketch of the panel, size of spindle and the direction in which the Cutter shall rotate.

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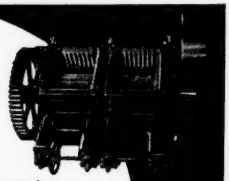
McLANAHAN EQUIPMENT

ROCK—SAND—GRAVEL



Single and double roll and jaw crushers, hammer mills, super dry pans, steel log washers and scrubbers, sand drags, revolving and vibrating screens, elevators, conveyors, dryers, jigs, hoists. Complete portable, semi-portable and stationary crushing, screening and washing plants for different capacities of any materials.

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Established 1835
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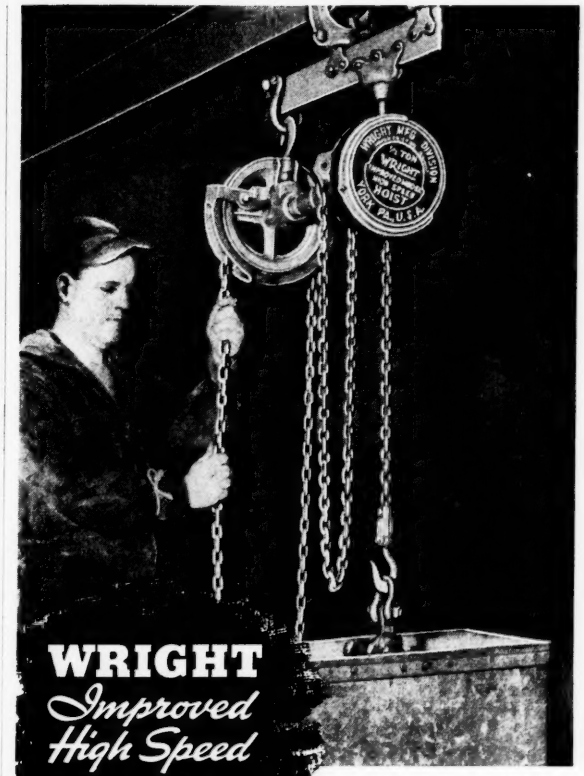

WRIGHT *Improved High Speed* HOISTS *do the job Right*

● Do your hoisting jobs at top efficiency—and with greatest economy. Use Wright Improved High Speed Hoists.

● All Wright Hoists—from ¼-ton to 40-ton capacity—are fast and powerful. Men like to work with them, because they're safe and easily operated. Managements like them because they get the jobs done right and last a long time.

● Each of these hoists has 21 definite points of superiority. Points such as zinc coating which prevents corrosion—a safety guard which makes it impossible for the load chain to ride out of the pocket, regardless of position—precision load wheel bearings which make speedy, smooth, positive action a matter of course.

● Send for the new Wright Catalog. It describes all the Wright 21 points of superiority in detail. It also gives much valuable information on hoists, cranes and trolleys.

Order from your distributor

BUY ACCO QUALITY *in Wright Hoists, Lay-Set Preformed Wire Rope, Reading-Pratt & Cady Valves, Campbell Abrasive Cutting Machines, American Chains, Page Welding Electrodes and Page Wire Fence.*

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AMERICAN CHAIN & CABLE COMPANY, Inc.
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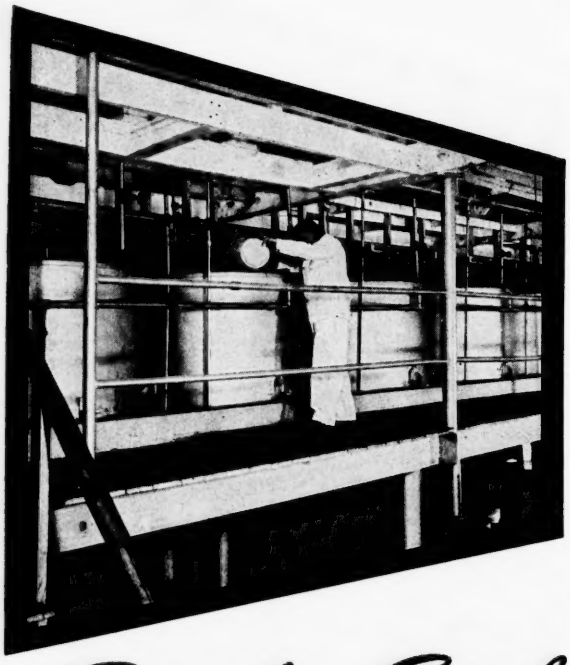

Stainless Steel

HELPS SELL

188% MORE HOMINY!

Here's a case where ARMCO Stainless Steel not only saved money for a southern cannery—it helped add 188% to the company's annual volume of hominy sales!

Until two years ago ordinary metal kettles were used for processing. Much of the food was stained a dull gray; the natural flavor was lost. Now, with drums made of ARMCO Stainless, hominy comes out snow-white. The real flavor is there too.

Result: Demand for this better-quality product is now so great that the company's canning period has been extended from six weeks to four months.

Maybe *you too* can make more money with ARMCO Stainless Steels. For he-man or white-collar problems, *whatever* your needs for flat-rolled stainless, you may be sure ARMCO will work with you to meet them. Just let us know what you make or intend to make. The American Rolling Mill Company, 1521 Curtis Street, Middletown, Ohio.

ARMCO

ARMCO

STAINLESS STEELS

"Finance and Kindred Subjects"

(Continued from page 46)

Taxes Added to Gasoline Cost

The American Petroleum Institute, investigating tax charges paid by the oil industry and the consumer, calls attention to the amount added by taxation to the cost of the motorists' gasoline. Fifty per cent increase over the filling station price as a result of State and Federal taxes is not uncommon, and in one instance combined Federal, State and local taxes added ten cents per gallon to the filling station price, thereby increasing the amount the motorist otherwise would have to pay by 80 per cent.

Obstacles to Recovery

The New York Credit Mens' Association asked its 2100 members the question President Roosevelt asked the Temporary Economic Committee: why money is idle, and recovery retarded.

Some of the main causes given for continued dullness in business are the following:

"The New Deal and its basic philosophy are the chief obstacles to recovery."

"The policies of the Administration are not only inimical to business, they are erratic as well, changing so frequently no man can plan with any degree of certainty."

"Taxes are excessive, ill balanced and punitive."

"Unbalanced budget."

"Wagner Act."

Improved Railroad Earnings

June reports of railroad earnings recently published show continued improvement in net income.

Norfolk and Western's net income for June was nearly four times that of May. For the first 6 months of this year the net income was almost double that of the same period last year.

The Seaboard Railway's net income was 13.80 per cent over June a year ago. Passenger revenue, 38.26 per cent above the same month of 1938, was higher than any month since 1929.

The Nashville Chattanooga and St. Louis Railway increased its net operating revenue more than 25 per cent over June, 1938.

Improvement In Steel

Continued improvement in steel output is decidedly encouraging to general business.

"As steel goes, so goes business," is an axiom of former times that would apply with equal truth today except for regulation of private enterprise from Washington. Under recent conditions the outlook has been obscured but maybe the signs now are pointing to better times.

Excess Reserves at New High

An all time high point in excess reserves of banks which are members of the Federal Reserve System was reached in July when the total climbed to $4,490,000,000. This vast fund of available credit is idle money which earns nothing. It will go a long way to help business when business wants more credit.

BUSINESS IS IMPROVING

and plans for new development are being made.

Our purpose is to help business

Correspondence invited

BALTIMORE COMMERCIAL BANK

GWYNN CROWTHER, *President*

BALTIMORE, MARYLAND

Member Federal Reserve System
Member Federal Deposit Insurance Corporation

FINE GEARS of all Materials—All Types and Sizes

Spur Gears—½ in. to 30 ft. in diameter
Bevel Gears—½ in. to 13 ft. in diameter
Spiral Gears—½ in. to 10 ft. in diameter
Worm gears any practical size. Racks curved or straight. Fast Delivery—Fair Prices.

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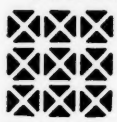
Ornamental and Industrial



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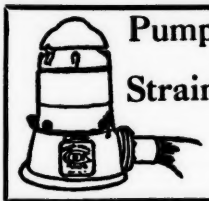
CLAY WORKING MACHINERY

FOR BRICK, TILE AND BLOCK,
FROM SMALLEST TO LARGEST CAPACITY.
Write for information
J. C. STEELE & SONS, STATESVILLE, N. C.



Pumps—Deep-Well Plunger and Turbine
Strainers—and other well supplies
WATER PRESSURE SYSTEMS
A. D. COOK, Inc.
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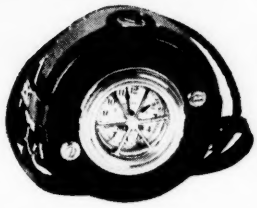
DETEX

WATCHMEN'S CLOCKS



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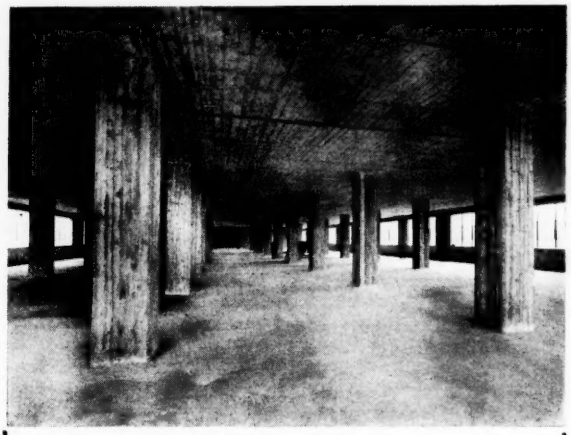
CUT ROOF MAINTENANCE COSTS With Careyclad COATING

Careyclad wears 100% longer than ordinary roof coatings because it is made under an exclusive Carey formula, combining the finest "High-Melting" asphalts with specific "Anti-Aging" chemical compounds. Specially graded asbestos fibres from our own mines give additional strength.

Careyclad Coating is not subject to hair-cracking, alligatoring, pinhole formation, slipping or sliding. Will not ball or roll up under brush. Highly resistant to the disintegrating action of the ultra-violet rays of the sun. Gives *both* longer protection and greater economy.

Careyclad is satisfactory for many different types of roofs, including metal. Write Dept. 61 for details.

THE PHILIP CAREY COMPANY • Lockland, Cincinnati, Ohio
Dependable Products Since 1873
BRANCHES IN PRINCIPAL CITIES



Building No. 20—Minn. Mining & Mfg. Co, St. Paul, Minn.
Toltz, King and Day, Inc.—Engineers & Architects
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One of 3 Buildings Constructed by M. M. & M. Co.
Using "Smooth Ceilings" Floor Construction

Ceilings All Flat.
Columns May Be of Steel or Concrete.
Pipes and Ducts Readily Pass Through Floor Slab Around Columns.
Structural Steel Column Heads Embedded in Floor Slabs Replace Cumbersome Concrete Caps in this New Type Flat Slab Floor Construction

"SMOOTH CEILINGS" SYSTEM, PTD.
See Sweet's Catalogue
802 Met. Life Bldg., Minneapolis, Minn.

POZZOLITH

"We were much pleased with the workability and denseness of the concrete obtained," reports Mr. H. R. F. Helland, Construction Engineer on the Sewage Treatment Plant at Pecos, Texas. "When the structures were filled with water for test, there was no leakage through the walls. This was gratifying as a similiar concrete structure built a few years ago with the same type aggregates had many leaks."

Durable, watertight, corrosion resisting concrete can be easily and economically attained with Pozzolith. Interesting performance data is available . . . send for it today.

SEND FOR THIS IMPORTANT TEST!

Freezing and thawing tests on Pozzolith concrete made by a leading university laboratory — authority in concrete research — show concrete durability is tripled by Pozzolith. Your copy of this report sent free upon request.

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MASTER BUILDERS

INDUSTRIAL NEWS

Machine Tool Congress

A schedule of programs of organizations participating in the Machine Tool Congress, to be held in Cleveland in October, has been completed, according to A. C. Danekind of the General Electric Company, who is president of the Congress. The schedule follows: Wednesday, October 4—National Electric Manufacturers Association, Hotel Cleveland Ball Room, 8.00 p.m.; Thursday, October 5—American Society of Mechanical Engineers, Machine Shop Practice Division, Hotel Cleveland Ball Room, 8.00 p.m.; American Society of Tool Engineers, Inc., Cleveland Engineering Society Quarters, Guildhall, 8.00 p.m.; General Electric Institute open house program and lighting demonstration, Nela Park, 7.30 to 10.00 p.m.; Friday, October 6—American Society of Tool Engineers, Inc., dinner meeting, Hotel Statler Ball Room, 6.30 p.m.; National Association of Foremen, Music Hall, Cleveland Public Auditorium, 8.00 p.m.; Monday, October 9—American Foundrymen's Association, Inc., dinner meeting, Hotel Hollenden Ball Room, 6.30 p.m.; symposium on castings, Hotel Hollenden Ball Room, 8.00 p.m.; Associated Machine Tool Dealers of America, dinner meeting, Hotel Cleveland Ball Room, 6.30 p.m.; Tuesday, October 10—Cleveland Engineering Society, Machine Design Division, Music Hall, Cleveland Public Auditorium, 8.00 p.m.; Wednesday, October 11—Society of Automotive Engineers, Inc., dinner meeting, Hotel Cleveland Ball Room, 6.30 p.m.; Thursday, October 12—General Electric Institute dinner meeting and lighting demonstration, Nela Park, 6.30 p.m. Several detailed programs are being currently announced.

Steel and Tubes Appointments

Steel & Tubes, Inc., subsidiary of Republic Steel Corporation, Cleveland, Ohio, announces the appointment of S. W. Sharbrough as agent for Electrunite Steel tubes and Fretz-Moon conduit for the state of Texas. Mr. Sharbrough's offices will be at 2427 South Ewing Avenue, Dallas. He will also represent the Thomas & Betts Company of Elizabeth, N. J., in connection with fittings and accessories for use with the products. Graduating from Millsaps College in 1919, Mr. Sharbrough has had wide experience in the distribution field in the South.

The company also announces the appointment of Hutson Colcock as agent of conduit products in the New Orleans district. A graduate of the College of Engineering, Tulane University, in mechanical and electrical engineering in 1930, Mr. Colcock spent the following three years with Westinghouse Electric & Manufacturing Company on the Graduate Students Sales Training Course in the field. This was followed by six months with the New Orleans Public Service, Inc. Since 1934 he has acted as manufacturers' agent in New Orleans and surrounding territory, specializing in lighting and wiring. His offices will be at 828 Burdette Street, New Orleans.

Air Reduction Sales Company Appointment

Air Reduction Sales Company, 60 East 42nd Street, New York, announces the appointment of J. T. Gillespie, Jr., as assistant to Thomas B. Hasler, president of the Wilson Welder and Metals Company, Inc., an affiliate of AIRCO. In his new position, Mr. Gillespie, formerly Assistant Manager of the Central Division of Railroad Sales of Air Reduction Sales Company in Chicago, will handle promotional sales activities in cooperation with I. B. Yates, General Sales Manager of Wilson Welder and Metals Company, Inc. His headquarters will be in New York.

N. Judson Miller Joins Hercules

Hercules Powder Company, Wilmington, Del., announces the addition of N. Judson Miller to the sales staff of its Providence Drysalters Division to serve the textile industry in North Carolina and South Carolina. For the past several years, Mr. Miller, a native of Columbia, S. C., has been a broker for textile chemicals and supplies in the South and brings to his new position a wide acquaintance in the textile industry and experience in the use of Providence Drysalters chemicals in textile finishing plants. His headquarters are at the branch office of the Naval Stores Department of Hercules Powder Company at 615 Johnston Building, Charlotte, N. C.

Merges Lamp Activities

Effective July 1, the General Electric Vapor Lamp Company of Hoboken, N. J., has been merged with the Incandescent Lamp Department of General Electric Company, according to Charles E. Wilson, executive vice president of General Electric. This change brings together General Electric's activities in incandescent and electric discharge lamps. The Incandescent Lamp Department will hereafter be known as the Lamp Department of General Electric Company.

"Smooth Ceilings" System

The installation of the "Smooth Ceilings" System in prominent buildings throughout the country is finding increasing favor. Among the latest structures of this character in which it has been installed is a 6-story cold storage plant under construction for the City of Kansas City, Kansas, the builders being the Inter State Construction Company of Kansas City, Mo. The system, which is a product of "Smooth Ceilings" System, Ptd., Minneapolis, Minn., is also being installed in the New Blum Store under construction in Baltimore.

Research on Precast Concrete Units

The Cementstone Corporation of Pittsburgh, Pa., has established an industrial fellowship in Mellon Institute for conducting fundamental chemical and physical research on precast concrete units such as are being produced by new principles of manufacture by the donor company. The main objective will be to develop novel practical methods and technics of wide practicability in the production of such units. Donald R. MacPherson has been appointed to the fellowship. He is a graduate of the chemical engineering department of the University of Washington, and for the past ten years has engaged in various branches of Portland cement and concrete technology. For the past five years he was a member of the research staff of the Portland Cement Association in Chicago.

Condon Transferred to Pittsburgh

W. F. Munnikuysen, president of The Wood Preserving Corporation, Pittsburgh, Pa., a Koppers Company subsidiary, announces that H. R. Condon, vice president, has been transferred from the company's Philadelphia office to the general office at Pittsburgh. Mr. Condon was formerly in charge of the corporation's eastern division. His new duties will be concerned with activities throughout the United States. He is a past president of the American Wood-Preservers' Association and is a member of several of its committees.

Vice President Pittsburgh Advertising Club

Fred W. Pennington, of the Advertising Department of Westinghouse Air Brake Company, Wilmerding, Pa., was recently elected vice president of the Pittsburgh Advertising Club.

Complete List of Republic Products

Steel and steel products made by Republic Steel Corporation of Cleveland, Ohio, and its subsidiaries are so numerous and varied that men of its own organization find it hard to remember them all. To help them, the company prepared a book containing a complete listing of products, many of which are made and shipped from the Republic plant at Gadsden, Ala. After internal distribution of the book, a small stock remains, and copies may be obtained upon request, by asking for "Complete List of Products."

Diehl Opens Charlotte Office

The Diehl Manufacturing Company, Electrical Division of The Singer Manufacturing Company, Elizabethport, N. J., has opened an office at 617 Johnston Building, Charlotte, N. C., in charge of James H. Lewis. This addition to the existing Southern district offices in Atlanta and Dallas will assure the maximum of service and accommodation to users and distributors of Diehl electrical equipment in the South. The company is a pioneer manufacturer of electric motors, generators and ventilating equipment.

SOUTHLAND PRODUCTS
—WELDED OR RIVETED—

Million gal. Tank at White Sulphur Springs, W. Va.

We now manufacture and offer to the trade tanks in all sizes for pressure or gravity work. Also other steel equipment of either

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This applies to field as well as shop built equipment.

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Decay and Termite Proof—Can Be Painted
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Plants at: New Orleans; Winnfield, La.; Louisville, Miss. Savannah, Ga.; Jackson, Tenn., and Norfolk, Va.

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Any Type—Any Purpose—Any Capacity

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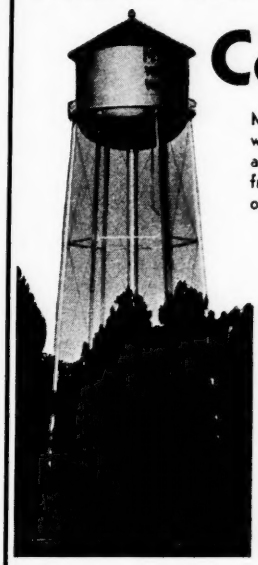
Cities Served by Cole Tanks



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ESTABLISHED 1854
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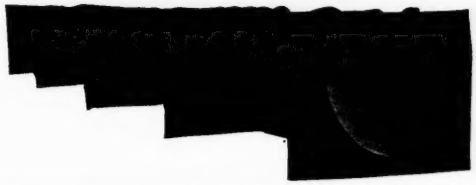

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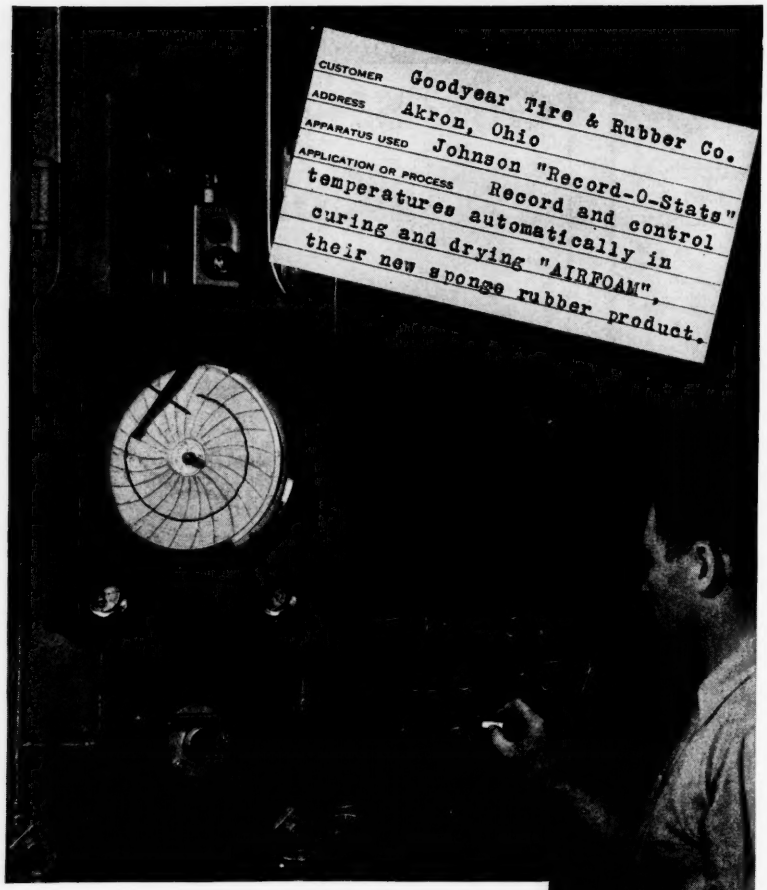
Baltimore, Maryland
The Largest Works of Its Kind in the South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ADDRESS Akron, Ohio
APPARATUS USED Johnson "Record-O-Stats"
APPLICATION OR PROCESS Record and control temperatures automatically in curing and drying "AIRFOAM" their new sponge rubber product.

The Problem:

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The Answer:

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Ask to have a Johnson Engineer call. There is no obligation.

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INDUSTRIAL NEWS

TESTING HYDRAULIC DEVICES
Bulletin—illustrated, devoted to the Deco Hand Pump for testing injectors and other hydraulic devices.
Diesel Equipment Corporation, 4401 N. Ravenswood Avenue, Chicago, Ill., designers and manufacturers of fuel injection equipment.

BARGE HAULAGE—
Bulletin No. 106 — illustrated, devoted to Robins Mead-Morrison Car and Barge Haulage Systems.
Robins Conveying Belt Company, 15 Park Row, New York, N. Y.

VENTILATORS—
Folder—illustrating and describing the Burt Monovent Continuous Ridge Ventilator, adaptable to practically every type of building construction and versatile in the solution of many problems in ventilation.
The Burt Manufacturing Company, Akron, Ohio.

REFRIGERATING MACHINERY—
Bulletin No. 153-F—"Ice and Frost," office publication, illustrated, featuring "Instant" Water Coolers.
Frick Company, Waynesboro, Pa.

V-BELT DRIVES—
Data Book—New engineering data publication for machine designers and engineers, designing V-belt drives; divided into two parts—the first covering standard drives eliminating the necessity of working out calculations, and the second, sheave factors for designing new or special drives; also contains belt comparison tables and other information.
The Manhattan Rubber Manufacturing Division of Raybestos-Manhattan, Inc., Passaic, N. J.

IRON VALVES—
Booklet—"The 'Inside Story' of Jenkins 125-Pound Valves," photographic study of all Iron Valve Types, analyzing factors of valve life and maintenance to show how savings may be effected, taking the new Jenkins 125-Pound Regrinding Globe Valve as the first example, then a Jenkins 125-Pound Regrinding Swing Check Valve.
Jenkins Bros., 80 White Street, New York.

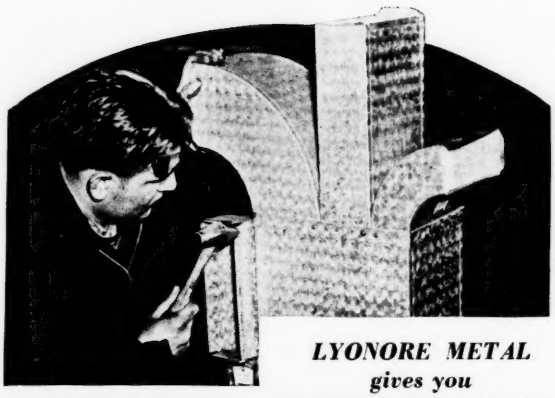
PUMPS AND WATER SYSTEMS—
Catalog Bulletin No. 40-60A—illustrated, devoted to shallow and deep well water systems for farms and suburban requirements, featuring the story of Burks Super Turbine Pump, Burks Heavy-duty Super Niagarette Pumps, and the complete series of Burks Super Turbine Educer (Jet) Systems for deep well applications;
Catalog Bulletin 115-A — covering Burks Super Turbine and Centrifugal Pumps for semi-industrial applications.
Decatur Pump Company, Decatur, Ill.

"STRESSPROOF STEEL NO. 2"—
Bulletin—describing the remarkable qualities of STRESSPROOF STEEL NO. 2, a non-warping shafting and machinery steel containing high strength, free machinability and unique wearability.
Joseph T. Ryerson & Son, Inc., Chicago, Ill.

Rayon and Staple Fiber Handbook—Third edition, 5½ by 7¾ inches, 832 pages, 22 large chapters, 300 illustrations, photomicrographs, tables and charts, green cloth cover with silver lettering, by Dr. E. W. K. Schwarz, published by Rayon Handbook Co., New York City; price $4.50 per copy in United States and Canada, $5.75 per copy in foreign countries.

In this edition, the Handbook has been completely revised, enlarged and brought up to date, necessitated by the continued growth of the filament rayon industry, the tremendous progress of rayon staple fiber and spun rayons as well as increased activity in research and technical knowledge. Two entirely new chapters have been added—"The Manufacture of Rayon Staple Fiber and Spun Rayon Yarns" and a complete "Glossary of Rayon Terms," while all other chapters have been enlarged and new information added in all manufacturing subjects.

In the dyeing, printing and finishing chapters, new developments such as inhibiting acetate fading, package dyeing of acetate, application of synthetic resins, non-slip and new anti-crease finishes are discussed in great detail. All the newer fibers such as protein fibers, and the new purely synthetic fibers as "Nylon" and "Vinyon" and glass fiber have not been treated technically because their technical and commercial development has not yet advanced far enough to be included in a book of this type. The contents of the book are logically arranged and include a complete subject index.



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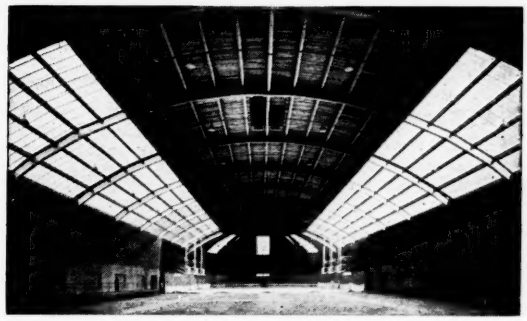

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STRUCTURAL STEEL
For Bridges, Buildings and All Industrial Purposes
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Complete Stock Shapes, Plates, Sheets and Bars for Immediate Shipment
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Structural Steel for all Industrial Structures, Buildings and Bridges.
LARGE STOCK FOR IMMEDIATE SHIPMENT

STRUCTURAL STEEL for BUILDINGS and BRIDGES
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Carolina Steel and Iron Company
The Largest Steel Fabricators in the Carolinas
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Kerlow Steel Floors
Better Floors for Safety

Kerlow industrial floors are safer and give better ventilation—made in various types 70% to 90% open—made in all riveted and rectangular designs for personal choice. Kerlow "BOLDEJ" Safety Steps are made in all grating designs. Ask for catalog.

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Ball Bearing. Push Button Control
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Difficult and unusual foundation and engineering problems a specialty
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Southern Tung Oil Laboratories

BY

R. S. McKinney, Chemist

Oil, Fat and Wax Section, Carbohydrate Research Division, U. S. Bureau of Agricultural Chemistry and Engineering.

THE establishment of two tung oil laboratories at Gainesville, Florida, and Bogalusa, Louisiana, has as its primary object to speed the development of the domestic tung oil industry along safe, sound and profitable channels. Toward this end, it was deemed advisable to divide the Department's tung research program into two main divisions, namely agronomical and technological research.

The technological research investigations to be carried on by the Bureau of Agricultural Chemistry and Engineering's chemists in their two new tung oil laboratories will deal with the better production and utilization of tung oil and tung oil byproducts. Studies will be made of the content and characteristics of the oil in tung fruits as influenced by various cultural factors, and by storage conditions. These studies will be carried on in cooperation with the Bureau of Plant Industry and the Florida Agricultural Experiment Station.

At the request of the tung oil mills and tung nut growers, particular attention will be paid to the development of reliable methods to determine the oil and moisture content of tung fruit. From this study it is hoped to produce methods which will be practical and short, so that they will be usable for the industry.

The drying of the tung fruit previous to the hulling and pressing processes will be studied to ascertain under what conditions the best yield and quality of tung oil will be obtained. The green tung fruits which drop from the trees in the fall are quite high in moisture content. The present practice is to allow the fruit to dry out partially in the fields and then to store them in ventilated bins until they are dry enough for pressing. Investigations will be made to determine the length of time to allow the fruit to remain on the ground and in the bins. The use of artificial drying to allow earlier processing of the fruit will be studied. The solvent extraction of tung nuts and of tung press cake by appropriate solvents will be thoroughly investigated.

The better utilization of tung hulls and of tung press cake meal will be sought. Tung hulls, which constitute about half of the weight of the fruit will be investigated particularly in connection with their use in fertilizer material and for other technical purposes. Also experiments will be made to determine the most profitable uses for the tung oil mills' press cake or meal. Tung nuts, because of their strong purgative and toxic properties, cannot as they are now be used for edible purposes. The removal or destruction, however, of the toxic principle of the tung nut would allow the profitable use of the tung press cake for feeding purposes. Attention will also be given to the possibility of using the tung press cake in industry for the preparation of plastics and as an organic fertilizer.

The constituents of tung oil and their influence on its drying properties will be subjects for study. Investigations will be made of the effects of various chemical and physical treatments of tung oil in relation to its composition and to its drying properties. The preparation of tung oil derivatives and the commercial use of tung oil with various driers, both alone and in admixture with other oils, will also be studied.

J. W. Roddie, Secretary, South Mississippi Agricultural Experiment Station, examining some of this year's crop of tung nuts.

Manufacturers Record Facts Results in Factory

The following letter, which will interest many readers, is an example of the use made of material appearing in the MANUFACTURERS RECORD. For upwards of half a century, the MANUFACTURERS RECORD, in furtherance of its avowed purpose to help in developing the South industrially, has constantly pointed the way to new materials and opportunities resulting in new industrial plants and expansions. The South is rich in source materials and in addition possesses advantageous facilities for manufacturing that are unequalled elsewhere. The experience of the American Colloid Company detailed below is being duplicated by numerous other concerns which see in the South a field for new wealth creation. Also, it can and will be duplicated by many concerns.

* * *

Chicago
July 24, 1939.

Editor,
MANUFACTURERS RECORD:

We have received your "Blue Book of Southern Progress" and congratulate you on its attractive appearance and interesting content.

The following may be of interest to you. In your November, 1935 issue appeared an article by Poole Maynard—"Bentonite Deposits and Uses." One paragraph refers to properties in the vicinity of Aberdeen, Mississippi, where the author stated that he had prospected and proved more than a half million tons of high grade uniform bentonite. Our Company has leased these properties and constructed a small plant for initiating shipments of this bentonite in powdered form.

This Company has been a producer of bentonite of the Wyoming type for many years, and is now expanding into the Southern field in the belief that the Southern bentonite will find new outlets in industry. Primarily we will introduce the Aberdeen bentonite into foundries for bonding and renewing molding sand.

The use of Wyoming bentonite for this purpose is a well established and successful practice, in fact, fully 40% of the output of Wyoming bentonite is used in foundries. Some years ago we found that the Southern bentonite could successfully be used for a similar purpose, supplementing but not replacing the Wyoming material. Its characteristics are markedly different from the Wyoming kind and it may even prove a better material for certain classes of castings, particularly small iron castings and cores.

Bentonite has been chiefly instrumental in causing a fundamental change in foundry practice, in the last ten years. Formerly nearly all molds for iron castings were made of "natural molding sand," a combination of sand grains and clay, quarried and shipped as it occurs naturally. The growth of the huge mechanized foundries, particularly in the automotive and agricultural implement field, required the daily use of great tonnages of sand and the problem of handling and renewing it was serious. It was found that by using the same sand over repeatedly and adding each time only a very small proportion of a clay substance to replace that which had been "burned out" by the molten metal, considerable saving could be effected. Since a smaller percentage of bentonite is required to produce an equal amount of bond strength compared to that of other clays, bentonite became the logical adjuvant.

A number of foundries have already started to use the Southern bentonite and our small plant is expected to be only the beginning for a much larger operation in that field. In the better-known field of oil decolorizing, the Aberdeen bentonite will be shipped unactivated for the present.

PAUL BECHTNER, *Manager,*
American Colloid Company.

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Enjoy freedom from the constant clatter of typebars that beat a daily tatoo on nerves. This daily din plays havoc with nerves and health and efficiency. A miniature boiler factory is not conducive to straight and accurate thinking. Make your office a better place for work by replacing noise with a Remington Noiseless.

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Writing Perfection with Silence

The new Remington Noiseless has established itself as the world's finest typewriter. By any test, it surpasses all others in the beauty of printwork, faultless manifolding and clean-cut stencils. It does everything demanded of a typewriter not only better but quietly. It is the one typewriter that assures writing perfection with silence.

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are behind the service of Eppinger and Russell Co. Industrial and commercial lumber of all kinds is made immune to termites and dry rot by pressure-treating with ZMA or Creosote. Consult Eppinger and Russell Co. on your requirements in poles, posts, piling, cross ties, cross arms and other timber. It will add 8 to 20 times the natural life to any woods you have treated by this low-cost, dependable process.

PRESSURE-TREATING PLANTS AT:
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Sales Offices, Washington, D. C., Atlanta, Ga.

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"the upbuilding of the nation through the development of the South"

While cosmopolitan in its general appeal, and modern *up to this moment* in its equipment, there is a peculiar flavor of The Old South here which Southerners are quick to note and appreciate. They feel at home and come back to us again and again.

Rates $3.00 *per day and up. Every room with bath or shower. Centrally located.*

The Southern Hotel
BALTIMORE

King Cotton's Test Tubes

(Continued from page 29)

of the latter to penetration of water and dirt. This problem is being attacked aggressively, in efforts to endow cotton sacking with qualities that will improve its competitive position.

The entire question of economical water-proofing, fire-proofing, and rodent-proofing of cotton textiles is one of great importance because huge markets are involved. Investigations of practical problems are being conducted in these fields; in addition, more radical attempts are being made to modify cottons to meet various industrial needs.

Linters have enjoyed a major outlet as a cellulosic raw material for the manufacture of rayon and especially of nitrocellulose for explosives, plastics, and lacquers. Keen competition for this market, however, is being encountered from improved types of wood pulp. Intensive work on the properties, methods of purification, and ultilization of linters is, therefore, an integral part of the research program.

Cottonseed is a particularly interesting raw material for the development of new uses. It has been an important source of income to the farmer, but little research has been directed toward expanding its utility through research into other major industrial applications.

From cottonseed hull bran an economical and effective sweeping compound has recently been worked out at the Institute. Commercial production under license has been started by two manufacturers, and wide-spread interest has been aroused in the product.

Processing of cottonseed meats by present-day methods results in injury to the proteins, from the point of view of commercial utility in glues, plastics, and coatings. A practical procedure has been developed by the Fellowship on a pilot-plant scale for producing an improved oil-free meal as a starting material. Two processes have been worked out for the isolation of the protein by commercially practicable methods and attention is now being given to the utilization of this new product, which has never before been available to industry.

Numerous other studies on cottonseed by-products include the production of activated carbon from the hulls, the development of uses for gossypol, and the modification of the oil to permit new industrial applications.

In addition to the research carried on at the Institute, several research grants have been made by the Cotton Research Foundation to Southern institutions for the study of cotton utilization problems.

For several years an investigation has been carried on by Prof. Cameron of the University of North Carolina on the use of the whole cotton plant as a source of industrial cellulose and cottonseed oil. A Fellowship from the Foundation to assist in this research has been in operation for the past 16 months.

Research on the utilization of linters and off-grades of lint, supported jointly by the Cotton Research Foundation and the University of Texas, has been in operation at the latter institution since July, 1938.

A grant has been made to Texas Technological College for a study of the composition and possible industrial uses of cotton burrs, which are accumulated in large quantities from "sledding."

An investigation is being sponsored at the University of Tennessee on the production of chemical products, especially furfural and lignin, from cottonseed hulls.

A unique departure is found in the program for developing a specialist in cotton cellulose chemico-economics, under the auspices of Mellon Institute.

It should be pointed out that the development of new uses is one of the most difficult types of industrial research. Broad preliminary studies in both the library and the laboratory are necessary as a foundation upon which to base the more intensive practical studies of promising aspects. Close cooperation with specialists in the various industrial fields which offer promise of utilization is necessary in order that adequate appraisal of technological and economic aspects may be made. It is not a matter of great difficulty to put together in the laboratory a large number of products from a given raw material—an agricultural waste product, for example—which on casual examination appear to be the equivalent of commercial preparations of similar nature. Unfortunately there exists a wide gap between such more-or-less haphazard formulations and the successful commercialization of new products.

A sound research program on utilization must therefore include also developmental programs with industry. To nurse a new product or process from laboratory stage to commercial scale is by no means a light undertaking for a company. The time required will usually amount to two to ten years, and many thousands of dollars will be spent in pilot-plant research, in technological market investigations, and finally in the financing of full-scale operation. To ensure a successful outcome, the original laboratory group should continue to supply basic information from which can be derived sound decisions relating to commercial aspects.

For the most part, this combat between science and the many problems of cotton technology will always be of the nature of "chemical warfare," because much of the work is in the province of chemistry. But the opportunities for physical and biological research are constantly increasing.

The sponsors of the Cotton Research Foundation realize clearly that investigational activities of this type can hope for success only if maintained over a period of years. The extent of work on uses for cotton products is much too restricted; in fact, there is ample room in the field for many times the number of research workers now engaged in such problems. It is the earnest hope of the Foundation that through their efforts an increasing number of properly trained scientists may enter the battle of cotton utilization to become leaders in the technology of the future.

Navigation on the Tennessee River

(Continued from page 38)

(Mile 385.8) are 56.4 feet in the center of the span, 53.6 feet adjacent to one pier, and 55.0 feet adjacent to the other pier. The vertical clearances of the Guntersville highway bridge (Mile 358.0) are 58.5 feet in the center span, and 56.6 feet adjacent to the two piers.

It is recognized by the T. V. A. that it might be necessary to suspend navigation in certain reaches of the river during an extremely high wind, if that wind is coming from an unfavorable direction. The probable frequency of such an occurrence is rare, but for such emergencies safety harbors are being provided along the banks of the wide pools.

Spillway gate capacities on the Tennessee River dams will be sufficient to hold the pools at a nearly constant level throughout a wide range of stream flow, thus facilitating construction and operation of navigation terminals. Because of the wide, deep pools the velocity of stream flow will be unusually low; furthermore, the navigator will be able to follow a more direct route instead of following the winding of the original channel, and with less danger of grounding or collision with other craft. The pools will be of width and length ideal for economical towing operations and will extend up the tributaries to provide an improvement that would otherwise be obtained only at considerable further expense.

Link-Belt Appointments

Link-Belt Company, Chicago, announces the appointment of J. A. Riggs Tractor Company, 424 East Third Street, Little Rock, Ark., as agent for the sale of Link-Belt Speed-o-Matic crawler-mounted shovels, draglines and cranes. In the smaller sizes (¾ to 1 yard) the Riggs organization will continue to handle the Speeder line of crawler- and truck-mounted machines.

The Company also announces the appointment of Frank S. O'Neil as general manager of the company's plants at Indianapolis, of which he has been assistant general manager for the past seven years. Mr. O'Neil joined Link-Belt 33 years ago at the company's Chicago plant, where he worked 10 years in the foundry, machine shop, cost department, and rate setting and production departments. He was transferred to Indianapolis in 1916, serving successively as assistant superintendent in charge of malleable iron chain assembly, superintendent of the Ewart plant, and assistant general manager of both the Ewart and Dodge plants.

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and pull up at the busiest conference on industrial advertising you ever heard of.

Two hundred controversial subjects will be discussed in clinics large and small. "How to improve your effectiveness as an advertising manager" will be one of the large clinics. The first day is Executive's Day (bring your boss).

Even at lunches you will be grouped with members and guests having identical interests.

Take advantage of low transportation rates, hotel accommodations at no increased cost and a guided tour of the industrial exhibits at the World's Fair with a day and a half left over to yourself! Make your hotel reservations early!

Some of the Clinic Subjects

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DIRECT MAIL	MEASURING RESULTS
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READERSHIP VALUES	SALES MANUALS

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LADIES' PROGRAM
•
DINNER AND SHOW AS USUAL

National Industrial Advertisers Association
100 East Ohio Street **Chicago, Illinois**
2-39

Farmers' Market Sheds Aid Florida Producers

(*Continued from page* 36)

has a clear floor space of 96 feet wide by 600 feet long. There are no intermediate supporting columns for the roof in any of these buildings. The sills are 8 in. x 10 in. Southern pine, with 2 in. x 10 in. floor joists and 2 in. Southern pine factory flooring. The columns are 8 in. x 10 in. Southern pine. On top of the trusses 2 in. x 6 in. purlins are used.

Teco timber connectors, which were used in all trusses, consist of metal rings, or plates, which, embedded partly in each of adjacent members, transmit the load from one to the other. By the use of these connectors, joints in timber framing are made two to three times as strong as the ordinary joint where bolts alone are used. These connectors increase the joint strength, thereby permitting the use of smaller size members for a given load, and reducing the cost for material.

Florida's marketing board has been highly gratified with the Southern pine sheds and according to present plans this material will continue to be employed in the construction of all farmers' markets that may be built in the future. In all market buildings erected, special attention has been given to construction practices which are designed to make the structures particularly resistant to hurricanes or other strong winds. They are strong and substantial and are giving excellent service.

The hope of finding a partial solution of the farmers' marketing problem has been the ambition of Nathan Mayo, who has been Florida's commissioner of Agriculture for fifteen years. He conceived the idea for the farmers' markets, so far as Florida is concerned. He appreciated the difficulty of devising a system which would work to the benefit of the farmer, the cooperative association, the square dealing middle man, and at the same time, assist in stabilizing prices for the benefit of distributors. But finally he reached the conclusion that the state could best serve in meeting the agricultural marketing problem, by constructing, equipping and supervising these farmers' markets, through which private transactions between producers and buyers may take place with the least confusion. Furthermore, he believed that a system of such markets, located in all parts of the state and conveniently accessible to the farmers, keeping closely in contact with each other, working together, would help in the stabilization of prices desired by everybody concerned.

Answers to questions "How Many Do You Know?" on page 42

1. 3.15%. 2. (a) The South increased its number of manufacturing establishments by 803; (b) The rest of the country decreased its number of manufacturing establishments by 3,120. 3. More than 25%. 4. Increased more than $46,000,000. 5. A gain of 35% over. 6. Three-quarters. 7. Nine-tenths. 8. Over 40%. 9. Naval Stores. 10. Decrease. 11. Half again as much as. 12. Abandonment necessitated by damage caused through excessive moisture, drought, or insects. 13. Peanuts. 14. Two billion. 15. Bauxite. 16. More than $800,000,000. 17. Missouri. 18. (a) By fuels; (b) by fuels.

Eighty-Two Railroads Buy Supplies in Virginia

(*Continued from page* 35)

and telegraph service, electric light and power, water service, payments to contractors, lawyers' fees, payments to hospitals and doctors, rentals, traveling expenses, interest and dividend payments and advertising.

Even with these items omitted, however, railway expenditures in the state for fuel, materials, supplies, equipment, labor and taxes, enumerated above, amount to $73,000,000 a year, at a time when railway employment and expenditures were below normal.

New Hosiery Plant For Mississippi

(*Continued from page* 37)

which was termed as a natural expansion to care for increased business.

Discrepancies in freight rates are expected to be met in part by the new type of machinery being used in the plant which will enable the company to manufacture a greater volume of hosiery in a given length of time than is possible at other plants using older equipment.

Resident manager of the Hattiesburg mill is H. J. Straussberger, formerly of New York. G. A. Boadwee, also formerly of New York, will serve as office manager and assistant treasurer. This plant, like others in the Kayser system, will be under the general supervision of Russell K. Boadwee of New York, vice-president in charge of manufacturing production.

The BAWI (balancing agriculture with industry) bond issue to secure necessary funds for purchasing the factory building voted on September 15, 1938, in Forrest County reflected the attitude of Mississippians toward the state's program for bringing new industry to Mississippi. The election resulted in a favorable vote of 2142 for and 144 against, or a ratio of approximately 16 to 1.

Chicago Bridge and Iron Anniversary

Published to commemorate the 50th anniversary of the founding of the company on August 8, 1889, the Chicago Bridge and Iron Company of Chicago, Ill., has issued a special edition of its magazine, The Water Tower, with the cover embossed in gold and black. In addition to the publication of this special issue, the company has designated 1939 as its special 50th anniversary year and has included on the cover of all other issues of the company's magazine and in practically all of its advertisements, a special 50th anniversary seal developed for the occasion. This seal is also embossed in blue, black and gold on all letterheads of the company and printed in one color on a great many of its standard forms, while a supply of stickers was made for placing on blueprints and other forms where it was not convenient to print the seal.

Distinctive features of the 50th anniversary magazine are a photograph of nearly full-page size of Horace E. Horton, founder of the company and father of its present president; a brief history of the company prepared by Florence Heath Horton, daughter of the president; attractive and illuminating illustrations; brief company plant histories, among the most prominent of which is the Chicago Bridge and Iron Company plant at Birmingham, Ala., and photographs of the company's present officers, including George T. Morton, President; Merle J. Trees, Vice President; Horace B. Horton, Treasurer; C. S. Pillsbury, Manager of Operations; H. C. Brown, Director, and S. A. Poyer, Secretary.

Financial Statement Illustrated

Following a modern trend, many banks and other financial institutions now issue their financial statements in simpler form, abandoning the language of the certified public accountant and explaining the statement item by item in words that are intelligible to the average stockholder and to the general public. Such modern practice has been adopted by many other business firms, but the Clark Equipment Company of Buchanan, Mich., is probably the first to incorporate its financial statement in a liberally illustrated booklet entitled "President's 1938 Report to Employees."

This company manufactures automotive axles, transmissions, wheels and axle housings, streamlined railway cars, subway trains, street car trucks, industrial trucks and tractors, high speed drills and reamers, steel castings, gears. Its plants are located in Buchanan, Berrien Springs, Battle Creek and Jackson, all in Michigan. The report pictures the plants, products, manufacturing processes, pays tribute to its employees, with a special bow to its veterans, the company having 212 employees who have been in its service for 20 years or more.

Taking the financial statement, the booklet reduces each item to a figure per employee, telling how much money the company received per employee and what was done with the money. It shows that it received from customers $4,544 per employee, and of these dollars it spent 41 cents for materials, paid 34 cents for wages, 11 cents for repairs and depreciation, 7 cents for taxes, insurance and development; 3½ cents for electricity, fuel, etc., and had 3½ cents profit.

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